



# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

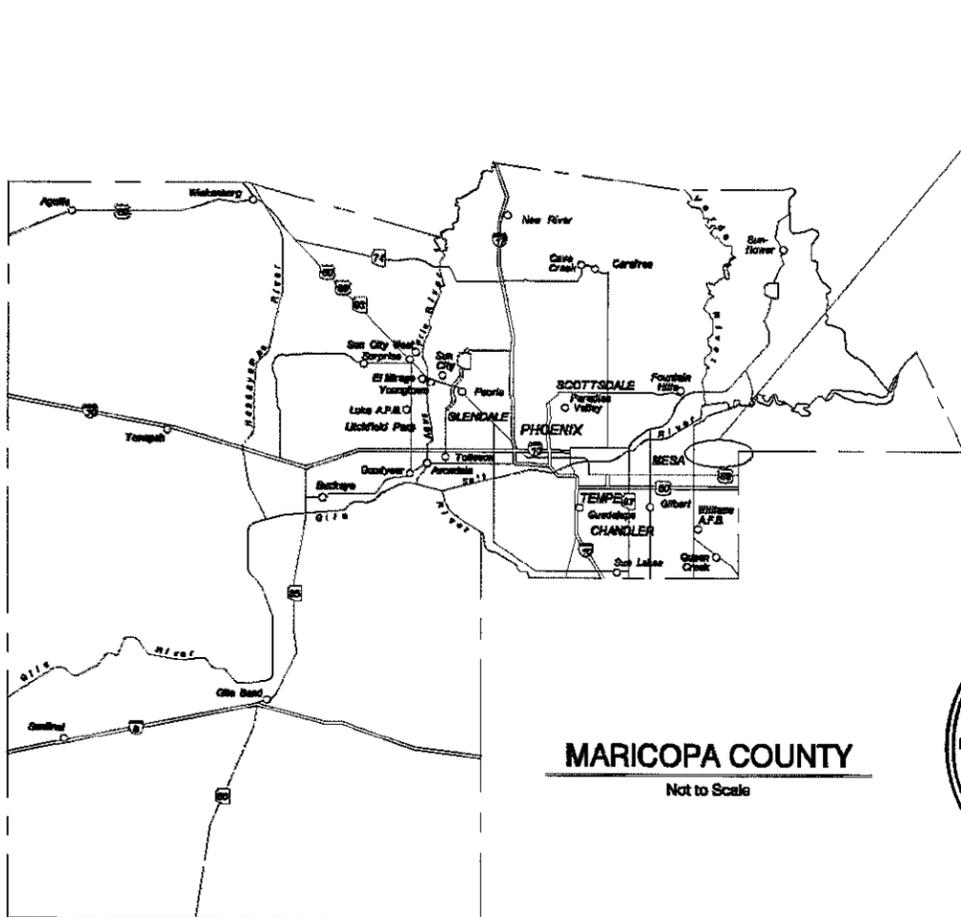


IN COOPERATION WITH THE CITY OF MESA  
 PLANS FOR THE CONSTRUCTION OF  
 MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
 PCN 420.03.31  
 FCD CONTRACT NO. 2006C010  
 CITY OF MESA PROJECT NO. 02-305-001

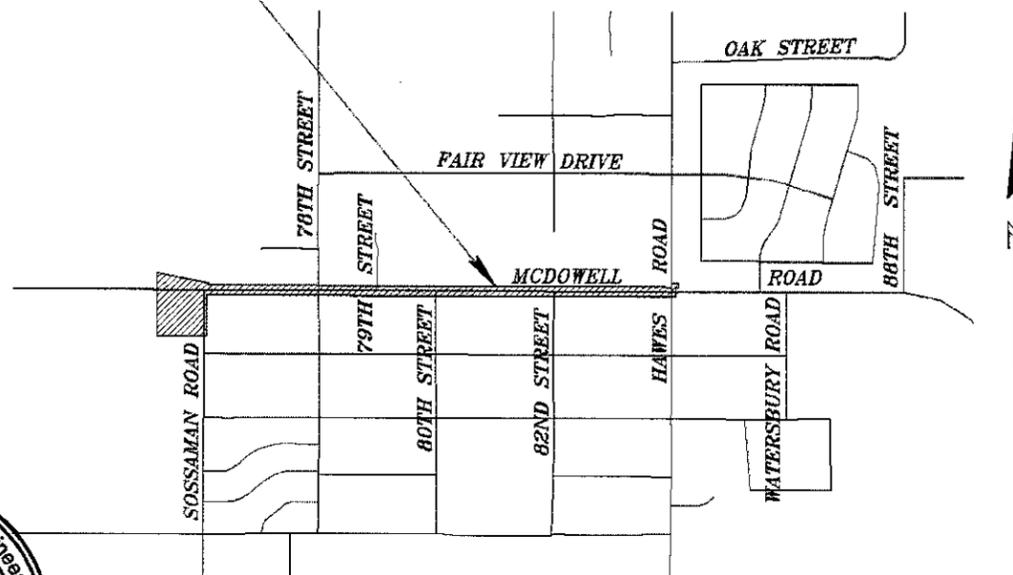
## MAINTENANCE PLAN

MARICOPA COUNTY DATE:  
 DEPARTMENT OF ENVIRONMENTAL SERVICES

CITY OF MESA DATE:  
 ENGINEERING DEPARTMENT



PROJECT LOCATION



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

PROJECT MANAGER DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER AND GENERAL MANAGER DATE

THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

- DISTRICT 1 FULTON BROCK
- DISTRICT 2 DON STAPLEY
- DISTRICT 3 ANDY KUNASEK
- DISTRICT 4 MAX WILSON
- DISTRICT 5 MARY ROSE WILCOX



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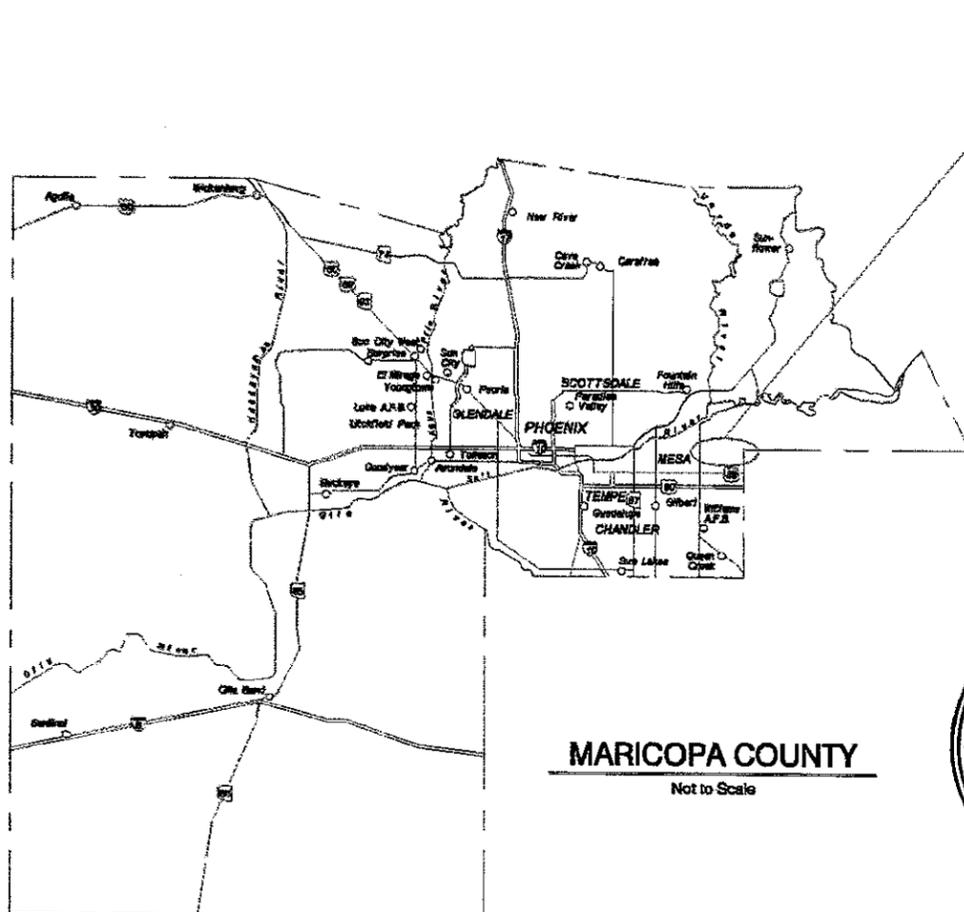
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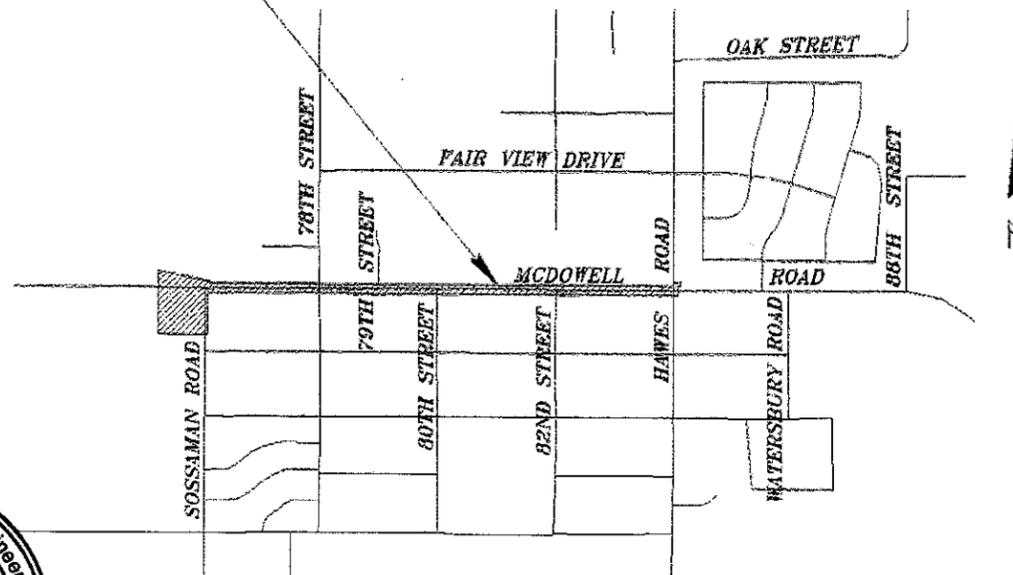
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## *Maintenance Plan*

# *McDowell Road Basin and Storm Drain Design*

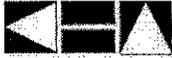


### **Prepared for:**

**Flood Control District of Maricopa County  
(FCD No. 2004C052)**

KHA Project No. 091131012  
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**MAINTENANCE PLAN  
for  
MCDOWELL ROAD BASIN AND STORM DRAIN**

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## 1. Spook Hill Area Drainage Master Plan Update

The McDowell Road Basin and Storm Drain project is part of the recommended plan of the Spook Hill Area Drainage Master Plan Update (ADMPU). The Spook Hill ADMPU was conducted by the Flood Control District and completed in July 2002. The purpose of the Spook Hill Area Drainage Master Plan (ADMP) Update was to expand the Spook Hill Area Drainage Master Study (ADMS) conducted in July 1987 by quantifying the extent of flooding problems, to incorporate existing drainage structures into the ADMS model, and to develop alternative solutions to flooding problems for the contributing watershed.

The area of study for the Spook Hill ADMPU is comprised of the Buckhorn – Mesa Watershed Project drainage area. The Spook Hill floodway and flood retarding structure (FRS) form the western boundary of the study area. The southern boundary is formed by the Signal Butte floodway and FRS, the Bulldog Floodway, and the Apache Junction FRS. The northern boundary lies along the crest of the Usery and Goldfield Mountains and crosses the saddle of Usery Pass. The eastern boundary lies approximately along the Apache Trail. The total area of ADMPU study is approximately 35 square miles.

The McDowell Road Basin and Storm Drain project is the first of the ADMPU identified projects to be designed and constructed and is being implemented in accordance with the ADMPU guidelines. The other recommended ADMPU projects will follow after the McDowell Road Basin and Storm Drain project. Two other regional ADMPU projects include the Hermosa Vista/ Hawes Road Project and the Oak Street Basin and Storm Drain project, a summary of which follows.

The **Hermosa Vista/Hawes Road Project** includes a drainage system to capture runoff from the Usery Mountains and surrounding area. The drainage system will consist of a storm drain that will tie into the existing Madrid Basin at 90<sup>th</sup> St. and McDowell Road, go west along McDowell, south along Hawes Road and west along Hermosa Vista Drive. The project also includes a stormwater basin at Hawes Road and Culver St. This project will be designed later in year 2006 with construction anticipated to begin in 2007/2008.

The **Oak Street Basin and Storm Drain Project** has been identified in the ADMPU as a 9.4 acre flood control stormwater basin located at the northeast corner of Hawes Road and Oak Street. This location was chosen for its ability to receive and accommodate peak discharges from the Oak Street and Hawes Road storm drains before entering into the existing Thunder Mountain west channel.

## 2. McDowell Road Basin and Storm Drain Project Summary

The McDowell Road Basin and Storm Drain is located in the City of Mesa along McDowell Road from Hawes Road on the east and Sossaman Road (76<sup>th</sup> Street) on the west. The project consists of a large diameter reinforced concrete pipe storm drain and an off-line detention basin. The storm drain is located off the south edge of pavement of

McDowell Road. The detention basin is located at the southwest corner of McDowell Road and Sossaman Road. **Figure 1** provides a schematic layout of the project elements.

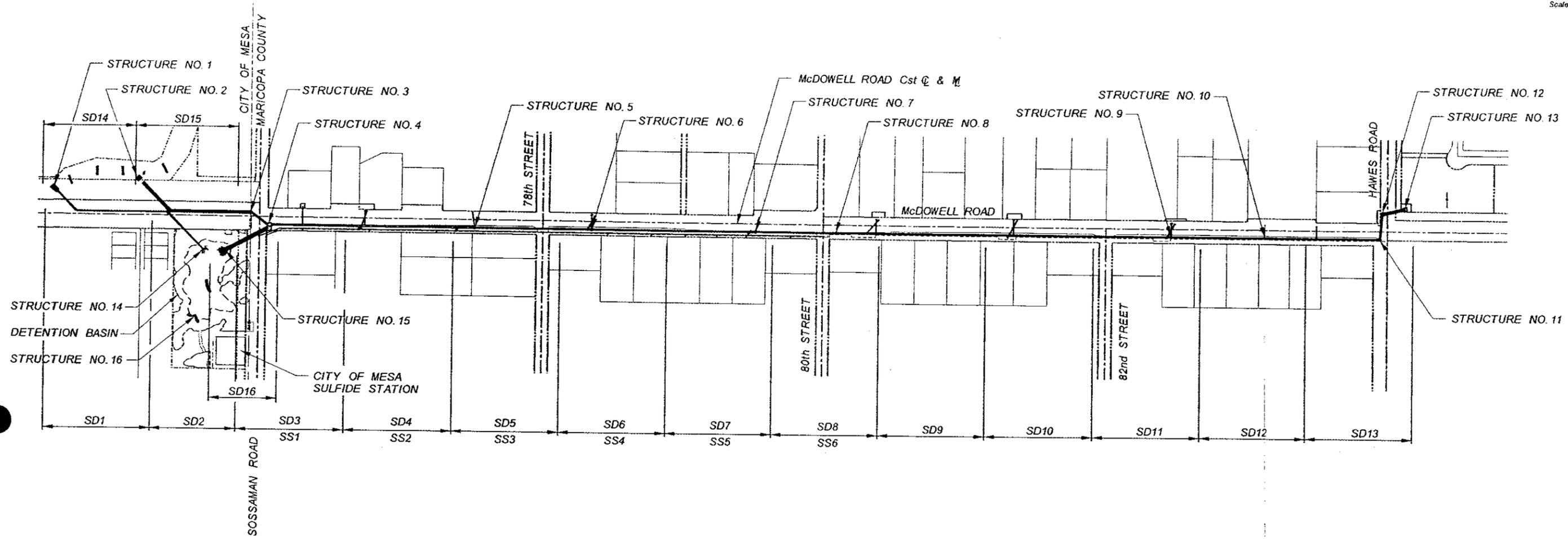
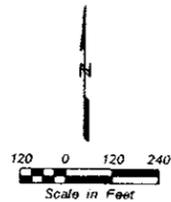
The project was developed to reduce the flooding potential south of McDowell Road between Hawes and Sossaman Roads. The ADMPU sized the storm drain for the 100-year return frequency storm event. The storm drain pipe sizes range from 54-inches to 90-inches. The main inlet structure for the McDowell Road storm drain is located within the existing detention basin of the Thunder Mountain Estates (TME) subdivision. The TME basin is located at the northeast corner of Hawes Road and McDowell Road. The inlet structure (referred to as the TME inlet) is a reinforced concrete structure that is 18-feet by 18-feet square and approximately 9-feet deep.

The majority of the flow conveyed by the McDowell Road storm drain will be captured by the TME inlet and enter the system at this location. Additional storm drain area inlets (catch basins) are located and spaced along and just off the north edge of pavement on McDowell Road. There is one inlet on the south edge of pavement east of 78<sup>th</sup> Street. These area inlets capture offsite flows from the drainage area north of McDowell Road, convey those offsite flows into the McDowell Road storm drain through connector pipes.

A unique feature of this project includes the design and construction of several small diameter cross culverts (18-inches to 24-inches in diameter) to convey low flows from the north side of McDowell Road into existing drainage channels and small washes on the south side of McDowell Road. A citizens' concern addressed during the development of the ADMPU and the McDowell Road Basin and Storm Drain project was to incorporate the capability of allowing low flows to continue to flow into the natural washes and not have the project totally intercept all the stormwater flow. The area inlets associated with the cross culverts were designed to allow low flows to bypass the area inlets (and hence bypass the McDowell Road storm drain) and flow into the cross culverts instead. During an event of higher storm flows, the flows will be divided between the area inlets (and be directed to the storm drain) and the cross culverts. The inlet/culvert system has been designed such that if the cross culverts were to become inoperable (such as the case of sediment and debris plugging the culvert) the area inlets have the capacity to capture the entire 100-year flows and direct those flows to the McDowell Road storm drain.

This feature also allows the existing vegetation located along the washes south of McDowell Road between Hawes Road and Sossaman Road to be subjected to storm water flows and hence a source of water. A secondary concern expressed by local residents is that the residents do like to experience low, controlled flows in the washes.

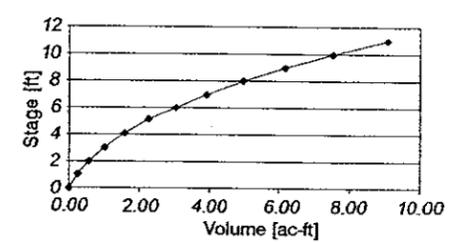
Note that the grates on the area inlet catch basins have been modified to allow a majority sediment and debris to be passed into the storm drain. The grates have been elevated four inches above the edge of the catch basin structure.



**DESIGN FLOW RATES (100YR, 24 HR STORM)**

STATION	DISCHARGE
BASIN	300
10+50	404
12+00	704
14+90	698
20+00	694
25+47	658
33+18	615
38+94	589
45+38	581
62+45	559
63+50	519

**DETENTION BASIN RATING CURVE**



**LEGEND**

SD - STORM DRAIN PLANS  
 SS - SANITARY SEWER PLANS

**FIGURE 1. LAYOUT**

3			
2			
1			
NO.	REVISION	BY	DATE
<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p><b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31</p>			
		BY	DATE
	DESIGNED	DEJ	10/04/06
	DRAWN	DKS	10/04/06
	CHECKED	RAE	10/04/06
		<p>Kinley-Horn and Associates, Inc.</p>	
DRAWING NO.	KEY MAP		SHEET OF
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The outfall of the McDowell Road storm drain and detention basin system is the existing Las Sendas drainage channel that is parallel to and north of McDowell Road (west of Sossaman Road). The drainage channel is a regional drainage channel for the Las Sendas subdivision that is within a public facilities easement. The Las Sendas channel outfalls into the Spook Hill FRS.

The ADMPU, completed in 2002, indicated that 1,540 cfs was the maximum existing conditions peak discharge in the Las Sendas channel for the 100-year storm event. To ensure the flow would not exceed 1,540 cfs, a detention basin on the northwest corner of McDowell and Sossaman was originally identified in the ADMPU to attenuate peak discharges that will be entering the storm drain from the contributing watershed. This site was not available for purchase by the District or the City of Mesa at the time of design. Consequently, the detention basin site was moved to a five acre site on the southwest corner of McDowell and Sossaman Roads, which was purchased by the City of Mesa.

### Hydraulic Splitter Structure

The ADMPU concept for the McDowell Road storm drain included a hydraulic splitter structure that will divert peak flows into the off-line detention basin while allowing bypass flows to flow to the Las Sendas channel. The structure will convey the majority of the discharge to the Las Sendas channel, but higher discharges will flow through a three barrel 42-inch diameter reinforced concrete pipe culvert to the McDowell Road detention basin. The design of the hydraulic splitter structure ensures that the maximum flow in the Las Sendas channel will not exceed 1,540 cfs during the 100-year storm event. The splitter structure is located at the southeast corner of McDowell Road and Sossaman Road.

A secondary purpose of the hydraulic splitter structure is to transition the storm drain from a 90-inch diameter reinforced concrete pipe (RCP) to a low rise reinforced concrete box culvert, which is the "by-pass culvert." The by-pass culvert is required so the storm drain can be placed under an existing City of Mesa 18-inch diameter sanitary sewer line located in Sossaman Road and a 12-inch diameter sanitary sewer located under McDowell Road. The by-pass culvert is a 7-foot span by 4-foot rise reinforced concrete box culvert.

The storm drain was designed to operate under pressure flow from the outlet at the Las Sendas Channel to the splitter structure and from the splitter structure upstream for several hundred feet. This was done to control the hydraulic grade line (HGL) in the splitter structure. A controlled HGL in the splitter structure will regulate the flow to the by-pass and the basin to ensure that the maximum flow in the Las Sendas channel is less than 1540 cfs. **Table 1** shows the elevations of the splitter structure components. A peak discharge of 331 cfs will be flowing in the by-pass culvert before any discharge flows into the basin.

**Table 1. Hydraulic Splitter Structure Elevation Data.**

Splitter Component	Elevation or Depth (ft)
HGL at Entrance to Splitter Structure	1647.1
HGL at Exit to 7X4 CBC By-Pass Culvert	1646.0
Average HGL in Splitter Structure	1646.4
Splitter Structure Floor Elevation (Invert Elevation for Culverts)	1635.4
Total Depth in Structure and Head on 7-Foot Span by 4-Foot Rise CBC By-Pass Culvert	11.0
Weir Crest Elevation and Design HGL for 3-42-inch diameter Detention Basin Culvert	1643.5
Total Head on Detention Basin Culvert	2.9

The by-pass box culvert transitions to a twin 54-inch diameter reinforced concrete pipe storm drain that is 620 feet long and discharges into the Las Sendas channel. The twin pipes are located in the north half of McDowell Road and west of Sossaman Road in the westbound lane. The storm drain was placed under the west bound lanes of McDowell Road for approximately 405 feet. At the storm drain outfall into the Las Sendas channel, energy dissipation will be accomplished using an impact-type baffle wall energy dissipater.

Peak flows will be conveyed to the McDowell Road detention basin downstream of the splitter structure through a three barrel 42-inch diameter reinforced concrete pipe, which is referred to as the "detention basin culvert." The detention basin culvert will be placed below the Sossaman Road 18-inch diameter City of Mesa sanitary sewer line and a 16-inch diameter City of Mesa water line.

### McDowell Road Storm Drain and Detention Basin Elements

**Table 2** below provides the size and location of the McDowell Road storm drain system elements. Note the station numbers are offset from the McDowell Road monument line and do not always identify the true pipe lengths. **Table 3** provides a summary of the McDowell Road detention basin physical parameters and **Table 4** provides a summary of the detention basin stage-storage-discharge rating table.

**Table 2. McDowell Road Storm Drain Elements.**

Beginning Station	Ending Station	Storm Drain Pipe Size	Pipe Length (ft)	Remarks
*RGRCP - rubber gasket reinforced concrete pipe				
<b>Main Line Including By-Pass Culvert</b>				
4+52	9+60	2-54-inch	1116	Two barrel RGRCP which outlets to the Las Sendas Channel
9+66	10+36	7-ft X 4-ft CBC	89	Single barrel concrete box culvert
10+56	14+96	90-inch	445	Single RGRCP
15+00	38+91	78-inch	2,380	Single RGRCP
38+96	62+54	72-inch	2,458	Single RGRCP
62+54	63+55	2-54-inch	190	Twin RGRCP
<b>McDowell Road Detention Basin Culverts</b>				
8+48	10+36	3-42-inch	555	Three barrel reinforced concrete pipe from Splitter Structure to Basin
0+58	7+41	48-inch	793	Single RGRCP Basin Outlet to Las Sendas Channel

**Table 3. McDowell Road Detention Basin Physical Parameters**

Physical Parameter	Value/Unit
Stormwater volume detained (100-year)	7.0 af
Freeboard	1.3 feet
Peak Inflow (100-year from splitter structure)	302 cfs
Peak Outflow (100-year) 41-in restrictor plate	127 cfs
Maximum water surface elevation	1639.7 feet
Emergency spillway crest width	50 feet
Emergency spillway crest elevation	1639.7 feet
Emergency spillway discharge*	164 cfs

\* assumes detention basin outlet pipe completely inoperable

**Table 4. McDowell Road Detention Basin Stage-Storage-Discharge Rating Table**

Stage (ft)	Storage (af)	Discharge (cfs)
0	0.0	0.0
1	0.3	15.9
2	0.7	34.8
3	1.1	53.9
4	1.7	71.2
5	2.3	85.8
6	3.1	97.5
7	4.0	107.0
8	5.0	116.2
9	6.1	127.5
10	7.0	144.3
11	8.9	171.0

The design discharges in the storm drain main line range from 519 cfs at the Thunder Mountain Estates detention basin to 704 cfs at the McDowell Road detention basin.

#### **Storm Drain System Outfall – Las Sendas Channel**

The outfall of the storm drain and the detention basin is the Las Sendas channel. A hydraulic splitter structure passes lower flows directly through the by-pass culvert directly to the Las Sendas channel. The majority of the runoff volume will go directly to the Las Sendas channel and will not enter the basin. Higher discharges rates in the McDowell Road storm drain that would exceed the 704 cfs in the storm drain will flow into the detention basin. The volume stored in the basin will be slowly metered out to the Las Sendas channel through the detention basin outlet pipe which is a 48-inch diameter RGRCP. The inlet structure of the 48-inch outlet pipe is fitted with a 41-inch restrictor plate orifice.

The starting water surface condition at the downstream end of the McDowell Road storm drain at the outfall of the by-pass into the Las Sendas channel was set at the crown of the twin 54-inch diameter RGRCP storm drain outlet pipes. A peak discharge of 1,540 cfs in the Las Sendas channel results in a hydraulic depth of 3.8 feet in the channel. This was estimated using a normal Manning's calculation based on the existing conditions in the Las Sendas channel. This would not cause backwater in the storm drain, but the energy dissipation structure at the outlet into the Las Sendas channel will be an impact-type baffle wall, so the starting condition of the hydraulic grade line for the 100-year storm event for the storm drain was placed at the crown.



## **Other Junction Structures**

A junction structure is located in the northwest portion of the McDowell Road and Sossaman Road intersection. This structure transitions the 7-foot span by 4-foot rise RCBC and the twin 54-inch diameter RGRCP pipes. The RCBC was designed and constructed to pass under the existing Sossaman Road sanitary sewer.

A junction structure is located on the west side of Hawes Road north of McDowell Road. This structure transitions the twin 54-inch RGRCP pipes to a single 72-inch RGRCP pipe. This 72-inch pipe crosses McDowell Road to another junction structure that directs storm drain flows west into the downstream 72-inch RGRCP pipe.

There are several other junction structures on the McDowell Road mainline storm drain. These junction structures function to allow changes in pipe slope, change in pipe inverts, change in pipe diameter, and/or accommodate the confluence of local connector pipes.

## **By-Pass Culvert**

The by-pass culvert is a single barrel 7-foot span by 4-foot rise reinforced concrete box culvert that will operate with a total head of 11.0 feet (under the 100-year storm event conditions), which is the depth of water in the hydraulic splitter structure. The by-pass culvert transitions from a box section to a double 54-inch diameter RGRCP on the north side of McDowell Road in the west bound traffic lanes of McDowell Road.

## **Detention Basin Culvert**

The detention basin culvert is a three barrel 42-inch diameter reinforced concrete pipe that is designed to go under of the 18-inch diameter sewer line that runs north and south along McDowell Road. Each 42-inch diameter pipe is 185 feet long. The total length for the three pipes is 555 feet. The slope of the pipes is 2.65%.

The energy dissipater at the outlet of the three barrel 42-inch diameter RCP was designed as a SAF type stilling basin. Large landscape rock was used as the energy dissipation baffles. The floor of the basin was constructed with flowable concrete around the base of the landscape rocks. Additional landscape rock is placed around the perimeter of the basin to act as the wall of the basin to contain the flow.

The basin outlet culvert is a 48-inch diameter RCP with a 41-inch diameter restrictor plate. This culvert will meter out flow in the basin to the Las Sendas Channel. The culvert will have typical headwalls with a riprap apron on the downstream end to prevent erosion.

### **McDowell Road Storm Drain Outfall Structure**

The McDowell Road storm drain outfall structure is an impact wall type energy dissipater. This structure was designed to dissipate energy to minimize erosion damage to the Las Sendas channel from stormwater discharges from the storm drain. This structure will ensure non-scouring velocities at the outlet. The structure was sized according to standards developed by the Natural Resources Conservation Service (NRCS).

### **Thunder Mountain Estates Inlet (TME Inlet Structure)**

The peak discharge rate to the Thunder Mountain detention basin for the 100-year storm event is 519 cfs. The TME inlet was sized to accept this peak inflow rate. The inlet is design to flow under weir flow with a maximum head of two feet on the sides of the structure. The crest elevation of the inlet was set 6-inches above the existing ground in the Thunder Mountain basin. This will minimize sediment in the basin from being transported into the storm drain system. The maximum depth of flow (two feet) over the weir/sides of the inlet is 6-inches below the invert of the block wall openings that are in the wall around the basin site, essentially giving the basin 6-inches of freeboard depth before any flow (above the 100-year storm event) would exit the wall openings.

### **Detention Basin Landscape Considerations**

The McDowell Road Detention Basin was designed in accordance with the ADMPU and with the City of Mesa's Site Development Design Standards and Desert Uplands requirements. Using these design considerations, the stormwater detention basin was designed to include the following features:

- The grading plan transitions into the existing landform and is designed to emulate the surrounding desert terrain. The overall shape of the basin is irregular and the slopes are designed to be gentle and natural, as opposed to anything with straight side slopes and a square form.
- The existing desert topsoil was salvaged and replaced after basin grading operations. This aids in creating an undisturbed appearance of the basin while preserving the seed base and organic material in the soil.
- The landscape was designed to screen views of the inlet and outlet structures and to provide a natural vegetative pattern to maintain the natural appearance of the site.
- The landscaping palette (plants) for the site include only native plant species specific to the desert uplands area.
- Native hydroseed was applied to all areas disturbed by the construction of the basin. The hydroseed mix includes trees, shrubs, grasses and wildflowers.
- Enhanced planting was provided on the north and east sides of the basin site, along McDowell and Sossaman roads. In addition to the hydroseed, container trees (15 gallon size), shrubs and groundcovers were planted and placed on

irrigation with an underground automatic irrigation system to aid in the establishment of the vegetation.

- Existing Saguaros and salvageable Ironwood trees impacted by the construction of the basin were salvaged and replanted on-site.
- Ironwood, Palo Verde and Native Mesquite species were planted throughout the basin to help reestablish the native tree species found on the site.

### 3. McDowell Road Basin and Storm Drain Maintenance Plan

The purpose of this report is to provide a general awareness of the anticipated maintenance activities required for the project. This report provides general guidelines for conducting maintenance activities for the elements of the McDowell Road Basin and Storm Drain project. The guidelines and activities noted in this report are only for this project.

This report does not supersede any standard operating procedures established by the Flood Control District of Maricopa County, the Maricopa County Department of Transportation, or the City of Mesa. All maintenance activities conducted by the District, McDOT, or the City of Mesa shall comply with all existing and applicable national, state, and local codes, safety standards (OSHA), and protocols. The District and the City of Mesa already have established Best Management Practices (BMPs) that are implemented to meet stormwater quality requirements as part of the National Pollution Discharge Elimination System (NPDES) program. By way of reference, those applicable BMPS are incorporated into this report.

The McDowell Road Basin and Storm Drain Maintenance Plan is divided into two parts and furnished in **Appendix A** and **Appendix B**. **Appendix A** contains the maintenance activities for the storm drain elements while **Appendix B** contains the maintenance plan for the landscaping elements of the project. **Appendix C** provides a copy of the construction plans for the McDowell Road Basin and Storm Drain project.

**Appendix A** is formatted into five parts:

1. Routine Inspection and Cleaning
2. Solid Waste Best Management Practices
3. Staff/Contractor Training and Coordination
4. Record Keeping and Evaluation
5. Operational Improvement, Structural Retrofit, and Design Changes

**Appendix B** is formatted in five parts as well:

1. General
2. Products
3. General Plant Care
4. Irrigation System
5. General Maintenance

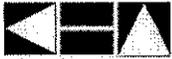
**APPENDIX A  
MAINTENANCE PLAN  
MCDOWELL ROAD BASIN AND STORM DRAIN**

## APPENDIX A

### Maintenance Plan for McDowell Road Basin and Storm Drain System Elements

#### I. Routine Inspection and Cleaning

1. Inspect and clean as needed, all area inlets and catch basins annually or before the sump is 40% full.
2. Stencil catch basins per standard BMP (e.g.: "Rain only in the Drain")
3. Inspect and clean as needed, all area inlets and catch basins after major storm events and in known problem areas more than once a year.
4. Inspect and clean as needed, all storm drain pipe systems in known problem areas more than once a year.
5. Develop flushing schedule of the storm drain based on experienced gained over time and from amount of debris and sediment accumulation in the drain.
6. Inspect and clean as needed, the Thunder Mountain Estates inlet sump and debris rack.
7. Cleaning activities may occur on a year round basis; however, known problem areas shall be targeted prior to the rainy season which correspond to summer monsoon (July through September) and the winter rainy season (November through March).
8. Inspect and clean as needed, all storm drain facilities that have been affected by emergency response activities (fire response, hazmat response, etc.).
9. Remove and transport collected solid waste debris and sediment to landfill.
10. Las Sendas Channel Outlet Structure (Impact Energy Dissipator) – Inspect and clean as needed. Inspect for local erosion around outlet and repair as needed.
11. Las Sendas Channel Outlet Structure (48-inch outlet pipe from detention basin) – Inspect and clean as needed. Inspect for local erosion around outlet and repair as needed.
12. Detention Basin Inlet Structure (Headwall and energy dissipator for triple 42-inch barrel storm drain) - Inspect and clean as needed. Inspect for local erosion around outlet and repair as needed. Inspect energy dissipator boulders and dissipator floor for structural integrity after major storm drain flows. Make appropriate repairs if necessary.
13. Detention Basin Outlet Structure (Headwall and trashrack for 48-inch storm drain). Inspect and clean as needed. Inspect for local erosion around structure and repair as needed. Remove debris and sediment accumulation from inlet of pipe.
14. Headwall Safety Railings and Access Barriers. Inspect and clean as needed. Check structural integrity of railings and barriers and bolts. Paint as needed.
15. Conduct storm drain video survey on an annual basis.
16. Conduct visual storm drain survey on an as-needed basis or after major storm events.
17. Check for illicit discharges to the storm drain, catch basin, and inlets as part of the routine annual condition survey.
18. McDowell Road Detention Basin. Inspect basin for accumulation of sediment and debris. If sediment buildup occurs to an average depth of 3 inches, remove



sediment using City of Mesa standard practices. Inspect basin slopes for signs of erosion and rilling. Repair erosion and rills as necessary. Inspect emergency spillway location and spillway crest area. Make sure spillway crest is free of objectionable materials such as debris and illegal dumped materials. Make note of signs of off-road vehicle activity (ATVs, motorcycles, etc.) and damages caused by such activity. Inspect basin during major flow events and after drawdown of flood pool. Inspect south embankment for any signs of piping or erosion holes. Repair as required.

## **II. Solid Waste Best Management Practices**

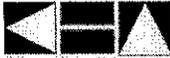
1. As much debris, silt, trash and sediment as possible shall be removed from the storm drain system when cleaning.
2. Provide proper containment for the temporary storage of removed debris during cleaning. Surface types of temporary storage sites should be of concrete, asphalt or other type of impermeable material.
3. Waste collected from storm drain systems shall be dewatered as necessary for proper disposal to the landfill. Dewatering sites should not drain to storm drains or creeks.
4. Check catch basins, inlets, and basin site for signs of illegal dumping. Remove dumped wastes as appropriate. Post "No Dumping" signs if required.

## **III. Staff/Contractor Training and Coordination**

1. Provide a referral and follow-up process between storm drain operation and maintenance and illicit connection and illegal dumping investigation staff for problems found in the field.
2. Provide staff training for storm drain operation and maintenance personnel at least once a year with emphasis on controlling storm water pollution through storm drain operation and maintenance.
3. Include provisions for storm water pollution prevention in contract specifications for conducting storm drain operation and maintenance.

## **IV. Record Keeping and Evaluation**

1. Maintain records tracking all cleaning activities. The records shall show when and which facilities have been inspected and cleaned. Spill and illegal dumping incidents and responses to both incidents shall also be documented and tracked.
2. Document any unusual flows observed during inspection (particularly dry weather flows) and the follow-up actions/referrals.
3. Review the records annually to critique the effectiveness of storm drain operation and maintenance activities. Modifications of storm drain operation and maintenance activities shall be identified in the annual individual work plans.



## **V. Operational Improvement, Structural Retrofit and Design Changes**

1. Review the storm drain operation and maintenance program annually and if needed, identify operational improvements, opportunities for structural retrofit and design changes.
2. Operation and maintenance provisions shall be included in planning and design phases of Capital Improvement Projects (for retrofit) to ensure that storm water quality issues are considered in the design of storm drain systems.

**APPENDIX B  
MAINTENANCE PLAN  
LANDSCAPING**

## APPENDIX B

### Maintenance Plan for McDowell Road Basin and Storm Drain Project Landscaping

#### 1 GENERAL

##### 1.01 SCOPE

- A Provide all supervision, labor, materials, equipment and transportation required for continuous landscape maintenance, complete as specified

##### 1.02 QUALITY ASSURANCE

A Requirements of Regulatory Agencies:

1. Perform all work in accordance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work.
2. Provide for all inspections and permits required by Federal, State, and local authorities in furnishing, transporting, and installing of all agricultural chemicals.
3. The County Agricultural Commissioner's Office must, by law, be given a monthly record of all herbicides, insecticides and disease control chemicals used.

B Applicable Standards: Apply standards as described in the following:

Arizona Nursery Association Current Standards

C Work Force:

1. The landscape maintenance provider shall have a full time foreman assigned to the job. He shall have a minimum of four years experience in landscape maintenance supervision, with experience or training in entomology, pest control, soils, fertilizers and plant identification.
2. The landscape maintenance provider's labor force shall be thoroughly familiar and trained in the work to be accomplished and perform the task in a competent, efficient manner acceptable to the City of Mesa.



3. The work force shall be directly employed and supervised by the foreman. The work force shall be under supervision at all times. Notify City of Mesa of all changes in supervision.
4. The landscape maintenance provider's labor force shall have proper identification at all times and be uniformly dressed in a manner satisfactory to the City of Mesa.

### 1.03 SUBMITTALS

Submit to the Owner for approval, two (2) copies each of the following items:

- A Schedule: Schedule of maintenance operations and monthly status report including list of all equipment and materials proposed to be used for the job and watering schedule.
- B Restricted Weed, Pest, and Disease Control Application Recommendations: Written application recommendation by a licensed agricultural pest control advisor for all weed, pest and disease controls restricted by the Director of Agriculture proposed for this work.
- C Licenses and Insurance: All licenses and insurances required by the City of Mesa, the State, or Federal government pertaining to this work.
- E Chemicals: Monthly record of all herbicides, insecticides and disease control chemicals used for the project.
- F Site Conditions: Initial documentation of site conditions (included existing planting and irrigation system) with corrective recommendations, if any, and cost and schedule for corrections.
- G Maintenance Manual: Include in a single, 3-ring binder a landscape maintenance manual containing an indexed collection of all schedules, records and permits listed above, as well as a documentation of condition of planting, irrigation, and landscaping at each site visit recording plant materials which are damaged or dying, if any.

### 1.04 SCHEDULING & COORDINATION

- A Hours: Perform all maintenance during hours mutually agreed upon between the City of Mesa and the maintenance provider.
- B Work Force: Work force shall be present at the project site as necessary to perform specified maintenance in accordance with the approved maintenance schedule.



- C Site Visits: Visit the site once a month for general maintenance. Frequency of site visits should be re-evaluated at the time of every visit as to whether or not the site needs to be visited more frequently.

## 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

A Fertilizers:

Sierra Chemical Company  
1001 Yosemite Drive  
Milpitas, CA 95035  
(408) 263-8080

B Herbicides:

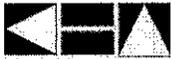
Chevron Chemical Company  
575 Market Street  
San Francisco, CA 94105  
(415) 894-0880

Rhone-Poulenc Chemical Company  
Agro Chemical Division  
P.O. Box 125  
Mon Mouth Junction, NJ 08852  
(201) 297-0100

Ciba-Geigy Corporation  
Agricultural Division  
P.O. Box 1830  
Greensboro, NC 27419  
(919) 292-7100

Elanco Products Company  
740 S. Alabama St.  
Indianapolis, IN 46285  
(317) 261-3638

The DOW Chemical Company  
P.O. Box 1706  
Midland, MI 48640  
(517) 636-0236



3M Company-Agri Chemicals Project  
3M Center, Bldg. 223-6SE  
St. Paul, MN 55144  
(317) 261-3000

## 2.02 MATERIALS

- A General: The maintenance provider, unless otherwise indicated, shall provide all materials and equipment.
- B Water: As available from the City of Mesa. Transport as required
- C Fertilizers:
1. Tightly compressed slow-release and long lasting complete fertilizer tablets bearing manufacturer's label of guaranteed analysis of chemicals present.
  2. Balanced, once-a-season application controlled-release fertilizers with a blend of coated prills which supply controlled-release nitrogen, phosphorus and potassium, and uncoated, rapidly soluble prills containing nitrogen and phosphorus.
- D Herbicides, Insecticides, and Fungicides: Best quality obtainable with original manufacturers' containers, properly labeled with guaranteed analysis. Use non-staining materials.
- E Replacement Tree Guys, Stakes, Ties and Wires: Match existing materials on the site (Provide detail(s) in 8-1/2 in. x 11 in. format if necessary).

## 2.03 EQUIPMENT

- A General: Use only the proper tool for each job. Maintain tools in sharp, properly functioning condition. Clean and sterilize pruning tools prior to usage.
- B Insect/Disease Prevention: Take measures to prevent introduction of insect or disease-laden materials onto the site.

## 3 GENERAL PLANT CARE

### 3.01 PREPARATION



A Protection:

1. Protect new planting areas from damage.
2. Provide temporary protection fences, barriers and signs as required for protection. Posts and signs may need to be put up where people are driving or walking through the site.
3. Evaluate if additional barriers such as fencing are needed to prevent people driving or walking through the site resulting in damage to the landscaping.

B Replacements:

1. Immediately treat or replace plants that become damaged or injured as a result of Maintenance Provider's operations or negligence, as directed by City of Mesa, at no cost to the City.
2. Replacement plants shall match size, condition and variety of plants replaced.

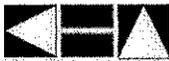
### 3.02 PLANTING

A Watering Basins:

1. Maintain watering basins around plants so that enough water can be applied to establish moisture through major root zones.
2. In rainy season, open basins to allow surface drainage away from the root crown where excess water may accumulate. Restore watering basins at end of rainy season.
3. For supplemental hand watering of watering basins, use a water wand to break the water force.
4. Reset plants to proper grades or upright position.

B Weed Control:

1. All areas between plants, including watering basins, shall be weed free.
2. Use only recommended and legally approved herbicides to control weed growth.



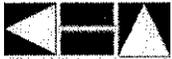
3. Avoid frequent soil cultivation that destroys shallow roots and breaks the seal of pre-emergent herbicides.

C Fertilization:

1. Recently installed plant materials: Verify from City of Mesa month of actual completion date of planting installation including amount and type of applied fertilizers.
2. Established plant materials: Insert 21-gram fertilizer tablets (20-10-5; N-P-K) in holes around dripline and between trunk and dripline. Punch or drill holes 6 to 8 inches deep. Apply one (1) tablet for each 1/2 inch trunk diameter or each foot of height or spread.

D Pruning:

1. Prune trees to select and develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached, which have vertical spacing of from 18 to 48 inches and radial orientation so as not to overlay one another.
2. Prune trees to eliminate diseased or damaged growth, narrow V-shaped branch forks that lack strength and to reduce toppling and wind damage by thinning out crowns.
3. Prune trees to maintain growth within space limitations, maintain a natural appearance and to balance crown with roots.
4. No stripping of lower branches ("raising up") of young trees will be permitted.
5. Retain lower branches in a "tipped back" or pinched condition with as much foliage as possible to promote caliper trunk growth (tapered trunk). Cut lower branches flush with the trunk only after the tree is able to stand erect without staking or other support.
6. Do primary pruning of deciduous trees during the dormant season. Prune damaged trees or those that constitute health or safety hazards at any time of year as required.
7. Make all cuts clean and close or flush with the trunk, without cutting into the branch collar. "Stubbing" will not be permitted. Cut smaller branches flush with trunk or lateral branch. Make larger cuts (1 in. in diameter or larger) parallel to shoulder rings, with the top edge of the cut at the trunk or lateral branch.



9. Branches too heavy to handle shall be precut in three stages to prevent splitting or peeling of bark. Make the first two cuts 18 in. or more from the trunk to remove the branch. Make the third cut at the trunk to remove the resulting stub.
10. Do not prune or clip shrubs into balled or boxed forms.
11. Take extreme care to avoid transmitting disease from one infected plant to another. Properly sterilize pruning tools before going from one infected plant to all other plants.

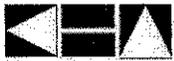
**E** Staking and Guying of Trees:

1. Inspect stakes and guys at least every three (3) months to check girdling of trunks or branches, and to prevent rubbing that causes bark wounds. Eyescrews in specimen tree trunks are preferred to looped wire and hose.
2. Remove existing stakes or guys when trees attain a trunk caliper of 4 inches. Recommend replacement to City of Mesa if trees are still unstable at this time.
3. Conform to the recommended industry standard procedures of staking and guying and as specified in the construction documents.

**F** Replacement of Plants: Immediately bring to City's attention, all dead plants and those in a state of decline. Replacement plants shall be of a size, condition and variety acceptable to City, to be paid for by the City unless due to negligence of the Maintenance Provider.

**G** Maintenance of Existing Plantings to Remain:

1. General: Conform to applicable paragraphs regarding pruning, watering, spraying and fertilizing of new plant materials as specified in this section.
2. Symptoms: Be alert to symptoms of construction damage to existing plantings as evidenced by wilting, unseasonal or early flowering or loss of leaves, and insect or disease infestation due to declining vigor.
3. Notification: Submit in writing of evidences of declining vigor immediately upon discerning the problem. Take appropriate interim measures to mitigate the severity of the problem as specified in this section.



4. Proposal: Submit written proposal and cost estimate for the correction of all conditions before proceeding with permanent correction work.

### 3.04 GROUNDCOVERS

- A Watering: Check for moisture penetration throughout the root zone at least once a month. Water as frequently as necessary to maintain healthy growth of groundcovers.
- B Weed Control:
  1. Control weeds, preferably with selective systemic herbicides.
  2. Minimize hoeing of weeds in order to avoid plant damage.
- C Fertilization:
  1. Recently installed plant materials: Verify with City of Mesa actual completion date of planting installation and rate of prior application of fertilizers.
  2. New plant materials: Place one (1) 5-gram tablets (20-10-5; N-P-K) beside the root ball about an inch from root tips.
  3. Established Plant Materials: Do not use complete fertilizers unless soil test shows specific nutrient deficiencies.
- D Replacement: Replace dead and missing plants after obtaining City of Mesa's agreement to pay for replacement. Damages due to Maintenance Provider's negligence shall be paid for without charge to Owner.

### 3.05 HYDROSEED

- A Watering: Watering hydromulched areas. Initial watering of seeded areas will be done to maximize growth of seedlings. The Maintenance Provider shall water and perform soil preparation and reseeded as required to maintain a fully established stand of plants. The method of watering shall be the Maintenance Provider's responsibility. The Maintenance Provider may utilize the alternate hydroseed irrigation system to water those seed mix areas which can be watered by the system if approved and agreed upon by the City.



B Protective Devices: Protective devices shall be provided as required to protect seeded areas from traffic. The Maintenance Provider shall repair and reseed areas damaged by traffic, erosion or poor germination and reseed to obtain successful germination based on the supplier's specified germination rates and species used.

C Weed Control:

1. Control weeds, preferably with selective systemic herbicides.
2. Minimize hoeing of weeds in order to avoid plant damage.

### 3.06 INSECTS, PESTS, AND DISEASE CONTROL

A Inspection: Inspect all plant materials for signs of stress, damage and potential trouble from the following:

1. Presence of insects, moles, gophers, ground squirrels, snails and slugs in planting areas.
2. Discolored or blotching leaves or needles.
3. Unusually light green or yellowish green color than normal green color of trees.

C Personnel: Only licensed, qualified, trained personnel shall perform spraying for insect, pest and disease control

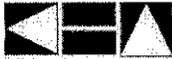
B Application:

1. Spraying for insect, pest and disease control shall be done only by qualified, trained personnel.
2. Spray with extreme care to avoid all hazards to any person or pet in the area or adjacent areas.

## 4 IRRIGATION SYSTEM

### 4.01 GENERAL

A Existing Damaged/Faulty Irrigation Items: Repair all damaged or faulty irrigation items documented at initial site visit. City of Mesa shall approve estimate of costs for repairs prior to starting work.



- B Maintenance Provider Damages to System: Repair without charge to City of Mesa all damages to system caused by Maintenance Provider's operations. Do all repairs within one (1) watering period.
- C Non-Maintenance Provider Damages to System: Report promptly to City of Mesa all accidental damage not resulting from Maintenance Provider's negligence or operations.
- D Rainy Season Operation: Do not run the irrigation system during rainy season. Set and program automatic controllers for seasonal water requirements.
- E Soil Moisture Monitoring: Once a month, use a probe or other acceptable tool to check the moisture of representative plants' rootballs as well as its surrounding soil.

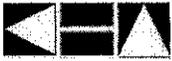
#### 4.02 CLEANING AND MONITORING THE SYSTEM

- A Irrigation System Flushing: At least twice yearly remove end cap from each system and flush pipe lines of grit, dirt and gravel.
- B Pump Filter and Strainer Cleaning: Clean pump filter and strainer once a year and as often as necessary to keep the irrigation systems free of sand and other debris.
- C Irrigation System Monitoring: Continually monitor the irrigation systems to verify that they are functioning. Make program adjustments required by changing field conditions.

### 5 GENERAL MAINTENANCE

#### 5.01 CLEANING

- A Landscape Waste and Mulch: Sweep walkways and dispose of pruned materials, clippings, and leaves and dispose of pruned materials. Remove any dead trees or shrubs found on site including capping off the water to the removal location.
- B Trash: Pick-up and dispose of trash throughout the basin site.
- C Maintenance Containers: Remove from the site containers and evidence of maintenance activities.
- D Site Disturbance: Re-grade, rake out, and clean up any disturbed areas due to people driving or walking through the site. Posts and signs may need to



be put up where people are driving or walking through the site. Evaluate if additional barriers such as fencing are needed to prevent damage to the landscaping resulting from people driving or walking through the site

**APPENDIX C  
MAINTENANCE PLAN  
CONSTRUCTION PLANS**



# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY



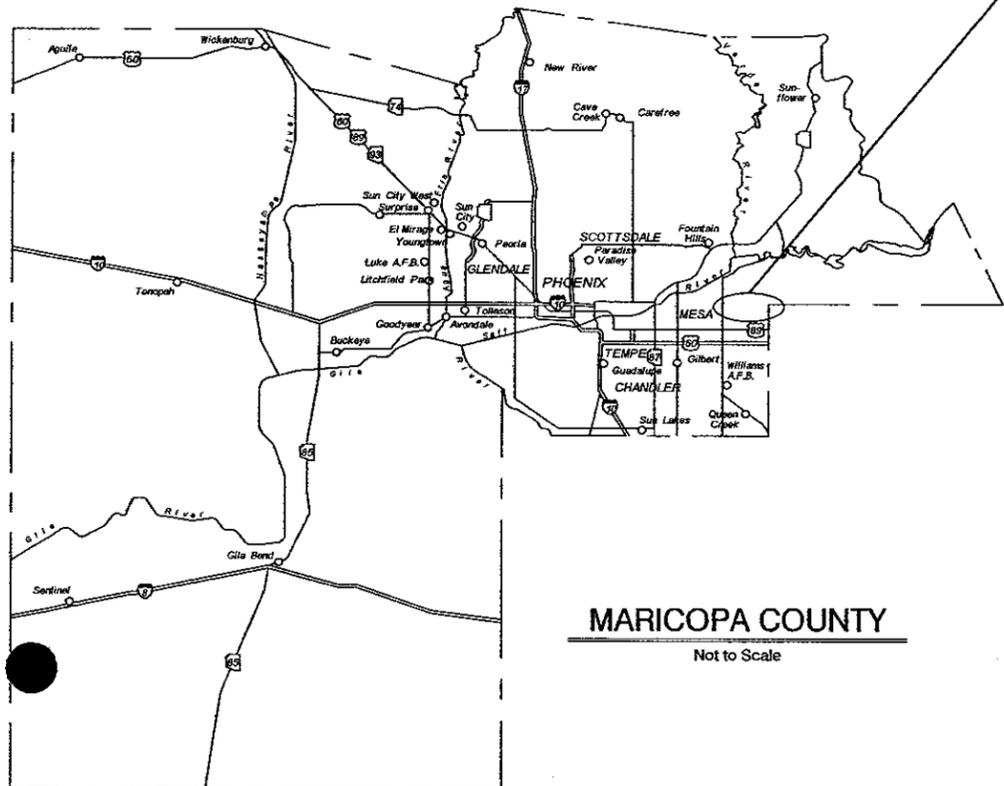
IN COOPERATION WITH THE CITY OF MESA  
 PLANS FOR THE CONSTRUCTION OF  
 MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
 PCN 420.03.31  
 FCD CONTRACT NO. 2006C010  
 CITY OF MESA PROJECT NO. 02-305-001

MARICOPA COUNTY DATE:  
 DEPARTMENT OF ENVIRONMENTAL SERVICES

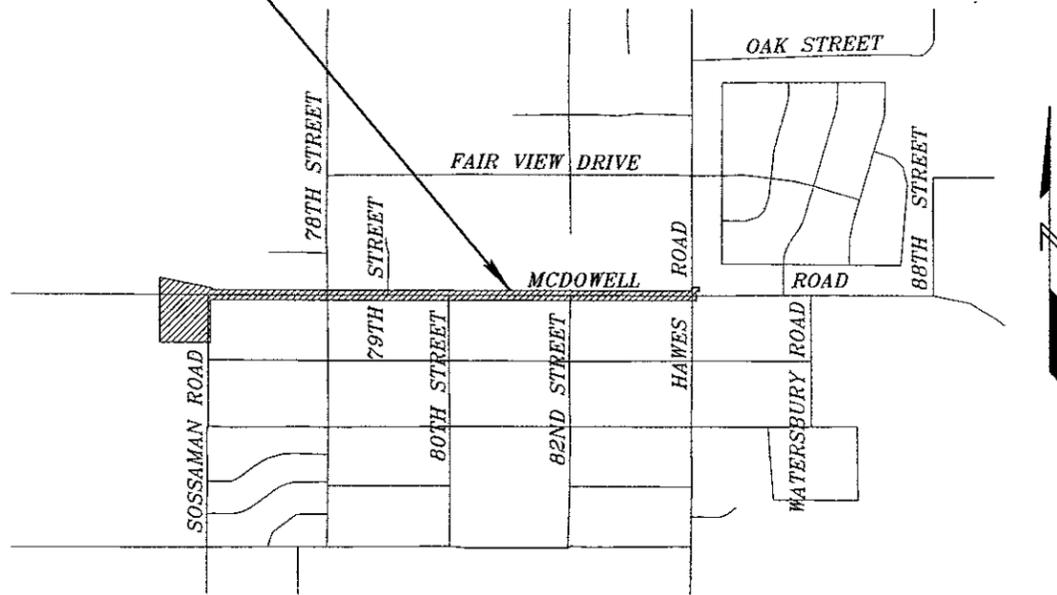
CITY OF MESA DATE:  
 ENGINEERING DEPARTMENT



### PROJECT LOCATION



MARICOPA COUNTY  
 Not to Scale



VICINITY MAP  
 Not to Scale

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

PROJECT MANAGER DATE

ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER AND GENERAL MANAGER DATE

THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

- DISTRICT 1 FULTON BROCK
- DISTRICT 2 DON STAPLEY
- DISTRICT 3 ANDY KUNASEK
- DISTRICT 4 MAX WILSON
- DISTRICT 5 MARY ROSE WILCOX

TWO WORKING DAYS BEFORE YOU DIG, CALL 602-263-1100 BLUE STAKE

**STRUCTURAL NOTES**

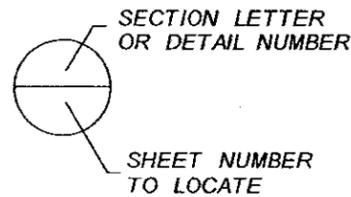
1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARDS DETAILS, SPECIFICATIONS, DATED 1998, INCLUDING ALL REVISIONS THRU 2006, UNLESS OTHERWISE NOTED.
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1 15TH EDITION, 1992.
3. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO THE CENTER OF BARS UNLESS OTHERWISE NOTED.
4. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.
5. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36.
6. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISION 1996.
7. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
8. CHAMFER ALL EXPOSED CORNERS 3/4" UNLESS OTHERWISE NOTED.

**GENERAL NOTES**

1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1998 AND THROUGH 2006 AND THE CITY OF MESA SPECIFICATIONS AND ADDENDUM TO MAG STANDARDS DATED 2006.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION.
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT.
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKES AT THE BLUE STAKE CENTER CENTER (PHONE: 602-263-1100).
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
6. THE FLOOD CONTROL DISTRICT OR CITY OF MESA IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION.
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURAL BACKFILL.
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH MAG SPECIFICATION 401; PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2003 EDITION); THE CITY OF PHOENIX TRAFFIC BARRICADE MANUAL (LATEST EDITION) AND THE CITY OF MESA SUPPLEMENT TO THE CITY OF PHOENIX MANUAL.
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS.
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, CATCH BASINS, COLLECTOR CHANNELS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEEPED CLEAN OF ALL DIRT AND DEBRIS.
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS AND PRIVATE DRIVEWAYS USED DURING THE COURSE OF CONSTRUCTION.
14. CATCH BASIN CONNECTOR PIPES SHALL BE LAID ON A STRAIGHT ALIGNMENT AND SLOPE UNLESS OTHERWISE SPECIFIED. IF BREAKS IN ALIGNMENT AND SLOPE ARE NECESSARY TO MEET FIELD CONDITIONS, THE MAXIMUM DEFLECTION SHALL BE 22.5 DEGREES. CONTRACTOR SHALL PROVIDE A PIPE COLLAR PER MAG DETAIL 505 AT EACH DEFLECTION.
15. CONNECTOR PIPES SHALL CONNECT TO CATCH BASINS WALLS AT AN ANGLE NOT TO EXCEED 22.5 DEGREES FROM PERPENDICULAR.
16. PIPE LENGTHS MEASURED TO CENTER LINE OF MANHOLES.
17. ALL EXISTING UTILITY ELEVATIONS ARE TO TOP OF UTILITY
18. CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATION OF CONFLICTING MAILBOXES WITHIN THE RIGHT-OF-WAY. CONTRACTOR TO COORDINATE MAILBOX RELOCATIONS WITH USPS. CONTRACTOR TO PROVIDE PRIVATE PROPERTY OWNER 48-HOUR NOTICE OF MAILBOX RELOCATIONS.
19. WATERLINE RELOCATION CONSTRUCTION SHALL CONFORM TO NATIONAL SANITATION FOUNDATIONS STANDARDS 60 AND 61.

**UTILITY NOTIFICATION**

PHONE NO.	COMPANY	CONTACT
(602)-236-8643	SRP (12kv)	JIM REA
(602)-236-8073	SRP (69kv)	BRENT BORNMANN
(480)-644-4751	CITY OF MESA	JAMES NEIBERGALL
(602)-630-3706	QWEST	AL SOTO
(602)-694-1562	COX	MICHAEL THIBODEAUX
(602)-694-2080	CABLE AMERICA (NOW COX)	BRYAN WILLIAMS



**INDEX OF SHEETS**

**ABBREVIATIONS**

AC	ASPHALTIC CONCRETE
NPI	NON-PAY ITEM
COP	CITY OF PHOENIX
CSTR	CONSTRUCTION
DESC	DESCRIPTION
EQ	EQUAL
FOC	FIBER OPTIC CABLE
OD	OUTER DIAMETER
OP	OVERHEAD ELECTRIC
P/L	PROPERTY LINE
P	PLATE CENTERLINE
PRV	PRIVATE
SPG	SPACING
UGT	UNDERGROUND TELEPHONE CABLE
TW	TOP OF WALL
TN	TOP OF NUT
R/W	RIGHT OF WAY
GDACS	GEODETIC DENSIFICATION AND CADSTRAL SURVEY
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
RCBC	REINFORCED CONCRETE BOX CULVERT
RCP	REINFORCED CONCRETE PIPE
USPS	UNITED STATES POSTAL SERVICE

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G4	LEGEND SHEET SYMBOLS AND LIFESTYLES	4
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**PROJECT BENCHMARK**

BRASS CAP IN HAND HOLE  
 LOCATION: McDowell Road and Sossaman Road  
 ELEV: 1649.32 FT NAVD88  
 HORIZONTAL DATUM: NAD1983



NO.	REVISION	BY	DATE
3			
2			
1			

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
PCN 420.03.31

	BY	DATE
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

**Kimley-Horn and Associates, Inc.**

DRAWING NO.	GENERAL NOTES	SHEET OF
G2	INDEX OF SHEETS	2 OF 73

CITY OF MESA NOTES

GENERAL NOTES

- ALL WORK AND MATERIALS SHALL CONFORM TO CURRENT UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION AS FURNISHED BY THE MARICOPA ASSOCIATION OF GOVERNMENTS AND AS AMENDED BY THE CITY OF MESA. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE AMENDED SPECIFICATIONS AND DETAILS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION IN MARICOPA COUNTY RIGHT OF WAY SHALL CONFORM TO CURRENT MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION STANDARD PROVISIONS FOR CONSTRUCTION OF STREET IMPROVEMENTS AND INSTALLATION OF UNDERGROUND UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL EXISTING UTILITIES AND AVOIDING DAMAGE TO SAME. CALL 602-263-1100 FOR BLUE STAKE SERVICES AND CALL SALT RIVER POWER FOR POLE BRACING, ELECTRIC SERVICE OR CONSTRUCTION SCHEDULING AT 602-273-8888.
- CONTRACTOR SHALL COMPLY WITH THE PROVISIONS FOR TRAFFIC CONTROL AND BARRICADING PER CURRENT CITY OF MESA TRAFFIC BARRICADE MANUAL.
- THE CONTRACTOR IS ADVISED TO CONTACT THE CITY'S TRAFFIC SIGNALS SUPERVISOR AT 480-644-3122 48 HOURS PRIOR TO ANY WORK WITHIN THE VICINITY OF OR THROUGH A SIGNALIZED INTERSECTION WHICH WILL CHANGE TRAFFIC LANE PATTERNS.
- THE CONTRACTOR IS ADVISED THAT DAMAGE TO ANY TRAFFIC SIGNAL EQUIPMENT (DETECTOR LOOPS, PULLBOXES, CONDUIT, ETC.) AS A RESULT OF THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR AND INSPECTED BY THE CITY TRAFFIC SIGNALS GROUP. DETECTOR LOOPS SHALL BE REINSTALLED WITHIN 24 HOURS OF REMOVAL AND PRIOR TO PLACEMENT OF THE ASPHALT FINISH COURSE.
- TRAFFIC SIGNAL DETECTOR LOOPS SHALL BE INSTALLED IN ASPHALT CONCRETE PAVEMENT BEFORE THE FINAL LIFT. THE CONDUCTORS (M-90) SHALL BE AT LEAST 1.5" BELOW THE TOP OF THE SURFACE COURSE (M-96.1).
- CONTRACTOR TO NOTIFY TRAFFIC OPERATIONS AT 480-644-3126 PRIOR TO SIGN REMOVAL AND WHEN READY TO PERMANENTLY RELOCATE SIGN.
- CONTRACTOR TO OBTAIN ANY PERMITS REQUIRED UNLESS OTHERWISE INDICATED, AND COORDINATE ALL IRRIGATION DRY-UPS, RELOCATIONS, AND REMOVALS BY OTHERS.
- CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AHEAD OF CONSTRUCTION TO ALLOW FOR ANY NECESSARY ADJUSTMENTS IN GRADELINE AND TO VERIFY PIPE MATERIALS FOR ORDERING THE APPROPRIATE TRANSITION AND TIE-IN FITTINGS THAT MAY BE REQUIRED.
- THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL ABANDONED UTILITIES THAT INTERFERE WITH THIS PROJECT. THE CITY OF MESA UTILITIES DEPARTMENT LOCATING SECTION WILL ASSIST THE CONTRACTOR AS NEEDED IN DETERMINING IF THE UTILITY (GAS, WATER, AND SEWER ONLY) IS ABANDONED BY CALLING 480-644-4500.
- PRIOR TO START OF CONSTRUCTION ON PRIVATE PROPERTY (EASEMENTS), THE CONTRACTOR SHALL GIVE THE OWNER SUFFICIENT TIME (MINIMUM 48 HOURS) TO REMOVE ANY ITEMS. THE CONTRACTOR SHALL ARRANGE TO REMOVE AND REPLACE ALL OTHER CONFLICTS AS REQUIRED.
- THE CONTRACTOR SHALL COORDINATE WORK SCHEDULES TO PREVENT ANY CONFLICTING WORK CONDITIONS WITH THE CITY OF MESA UTILITY AND TRAFFIC CREWS.
- THE CONTRACTOR IS ADVISED THAT AN EXCAVATIONS AND DIRT MOVING PERMIT AND A DUST CONTROL PERMIT MAY BE REQUIRED BY THE MARICOPA COUNTY HEALTH DEPARTMENT. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN THESE PERMITS IF REQUIRED AND COMPLY WITH THEIR REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE A COPY OF THE PERMIT(S) ALONG WITH A COPY OF THE DUST CONTROL PLAN TO THE CITY FOR REVIEW PRIOR TO CONSTRUCTION.
- INSPECTIONS SHALL BE PROVIDED BY THE CITY OF MESA. THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTION DEPARTMENT AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION FOR SCHEDULING.
- THE JOB SITE SHALL BE CLEANED OF ANY DEBRIS OR SPOIL RESULTING FROM THIS PROJECT AT THE COMPLETION OF CONSTRUCTION.
- ALL EQUIPMENT AND MATERIALS NOT SHOWN OR SPECIFIED ON THE PLANS OR SPECIFICATIONS, BUT REQUIRED TO COMPLETE THIS PROJECT, SHALL BE SUPPLIED BY THE CONTRACTOR AS PART OF THIS CONTRACT WORK. (NO ADDITIONAL COST.)
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY FITTINGS AND ADAPTERS REQUIRED TO CONNECT DIFFERENT TYPES OF WATERLINE MATERIAL. THE COST SHALL BE INCLUDED IN THE LINEAR FOOT UNIT PRICE.
- VERTICAL OR HORIZONTAL BENDS SHALL BE PIPE JOINT DEFLECTION UNLESS OTHERWISE NOTED. PIPE JOINT DEFLECTION SHALL NOT EXCEED PIPE MANUFACTURER'S RECOMMENDATIONS.
- WATERLINE TEST SHALL BE COMPLETED SO THAT NO OLD LINES ARE INCLUDED IN THE TEST. A DAYTIME TIE-IN (BETWEEN 9:00 AM AND 2:00 PM) MAY BE REQUIRED BY CITY INSPECTOR. FOR A DAYTIME TIE-IN BETWEEN 9:00 AM AND 2:00 PM, THE CONTRACTOR SHALL COMPLETE ALL WORK NECESSARY TO RESTORE UTILITY SERVICE AND FULLY OPEN THE TIE-IN AREA TO TRAFFIC WITHIN THE TIME ALLOWED. SEE THE SPECIAL PROVISIONS FOR TRAFFIC CONTROL REQUIREMENTS.
- WATER METERS, METER BOXES, LIDS, ETC. IN CONFLICT WITH NEW CONSTRUCTION SHALL BE RELOCATED TO THE PROPERTY LINE BY THE CONTRACTOR. THE RELOCATION SHALL INCLUDE ALL MATERIALS NECESSARY TO RECONNECT THE METER TO THE CITY DISTRIBUTION SYSTEM.
- WHEN GROUTING OR CASTING CONCRETE AROUND PVC PIPE, CONTRACTOR SHALL USE WATER STOPS AS RECOMMENDED BY THE MANUFACTURER.
- VALVES SHALL BE INSTALLED WITH VALVE BOX AND COVER PER MAG STD DETAIL 391-1 TYPE C AND 391-2 IF 2" OPERATING NUT IS MORE THAN 5" BELOW EXISTING CENTERLINE GRADE.

- WATERLINE PLUGS ON ABANDONED UTILITIES SHALL BE POURED CONCRETE. WATERLINE PLUGS ON ACTIVE WATERLINES SHALL BE PER MAG STD DETAIL 390 TYPE B.
- ALL WATER SERVICES SHOWN ON PLANS ARE 3/4" DIAMETER UNLESS OTHERWISE NOTED.
- ALL SEWER CLEANOUTS SHALL BE CONSTRUCTED PER MAG STD DETAIL 441.
- ALL SANITARY AND STORM SEWER MANHOLES SHALL BE CONSTRUCTED PER MAG STD DETAIL 420, 424, 520 AND 522 EXCEPT THAT: ALL MANHOLE SHAFTS SHALL BE 5' INSIDE DIAMETER (OR AS NOTED ON THE PLANS). ALL MANHOLE RINGS AND COVERS SHALL BE 30" DIAMETER, AND STEPS SHALL NOT BE INSTALLED.
- SEWER PIPE 12" IN DIAMETER AND SMALLER MAY BE PVC PIPE INSTALLED PER SECTION 745 OF THE MAG STANDARD SPECIFICATIONS AND THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL INSTALL 4" AND 6" SEWER SERVICES PER MAG STD DETAIL 440 AT THE LOCATIONS SHOWN AND MARKED ON THE PLANS. COM DETAIL M-24 SHALL BE USED FOR THE ELECTRONIC MARKER INSTALLATION.
- WHEN THERE IS LESS THAN 2' SEPARATION BETWEEN A WATERLINE AND A SEWER LINE, OR WHEN A SEWER LINE CROSSES OVER A WATERLINE, ENCASEMENT IS REQUIRED PER MAG STD DETAIL 404-1 AND 404-2. BOTH WATERLINE AND SEWER LINE SHALL BE ENCASED.
- WHEREVER PAVEMENT REPLACEMENT PER COM DETAIL M-19.4 OR MAG STD DETAIL 200 IS REFERRED TO WITHIN THESE PLANS, BACKFILLING SHALL BE PER THE CITY OF MESA STREET TRENCH BACKFILLING AND PAVEMENT REPLACEMENT POLICY STATEMENT, REVISED SEPTEMBER 29, 1999.
- CONTRACTOR SHALL COORDINATE ALL DRIVEWAY LOCATIONS WITH PRIVATE PROPERTY OWNERS AND THE CITY INSPECTOR.
- ALL 5" THICK DRIVEWAYS PER MAG STD DETAIL 250, SIDEWALK RAMPS PER MAG STD DETAIL 231, 232, 233, AND 234, AND COM DETAIL M-44 SHALL BE PAID AS SIDEWALK (MAG STD DETAIL 230) UNLESS OTHERWISE NOTED.
- ALL GUTTER GRADES LESS THAN 0.0015 FT/FT SHALL BE STAKED ALONG THE ACTUAL GUTTER ALIGNMENT (NOT OFFSET) AND CHECKED BY CITY OF MESA INSPECTOR IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE.
- ALL FRAMES, COVERS, VALVE BOXES, ETC. SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE AFTER PLACEMENT OF ASPHALT CONCRETE SURFACE COURSE PER MAG STD DETAIL 270 AND 422.
- SAWCUT AND REMOVE ALL EXISTING ASPHALT CONCRETE PAVEMENT WHERE NOTED ON PLANS AND INCLUDE COST IN AMOUNT BID FOR SUBGRADE PREPARATION UNLESS OTHERWISE NOTED.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ALL WORK ASSOCIATED WITH THE STREET LIGHTING SYSTEM IS INSPECTED AND APPROVED BY THE CITY PRIOR TO BACKFILLING TRENCHES OR COVERING ANY WORK. CONTACT THE CITY OF MESA ENGINEERING FIELD INSPECTOR TO ARRANGE FOR STREET LIGHT SYSTEM INSPECTION.
- FOR PURPOSES OF PAVEMENT PER MAG STD DETAIL 200 OR COM DETAIL M-19.4, INTERSECTIONS ARE DEFINED BY THE CURB RETURNS IN ALL DIRECTIONS.
- ALL NEW FIRE HYDRANTS SHALL BE PLACED 3' BEHIND THE EXISTING SIDEWALK OR 7' BEHIND CURB AND GUTTER. FIRE HYDRANT MAY BE PLACED CLOSER TO THE CURB AND GUTTER IF THERE ARE ANY CONFLICTS WITH EXISTING LANDSCAPE FEATURES. COORDINATE WITH THE CITY INSPECTOR. BID ITEM "FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY" DOES NOT INCLUDE ANY VALVES, BOXES, COVERS OR WATERLINE REQUIRED TO ATTACH THE HYDRANT TO THE MAIN. THESE ITEMS ARE COVERED UNDER SEPARATE BID ITEMS. CONTRACTOR SHALL PROPERLY DISPOSE OF OLD FIRE HYDRANTS. ALL FIRE HYDRANT VALVES SHALL BE FLANGE X MECHANICAL JOINT PER MAG STD DETAIL 360. FIRE HYDRANT LOCATION SHALL BE COORDINATED WITH THE CITY.
- ANY SURVEY MARKERS DISTURBED OR DAMAGED BY THE CONTRACTOR SHALL BE REPLACED IN KIND AT NO ADDITIONAL COST TO THE CITY.
- ALL EXISTING PAVEMENT MARKINGS, SIGNS, AND SIGNAL EQUIPMENT THAT NEED TO BE REMOVED, REPLACED, RELOCATED, OR REPAIRED BECAUSE OF CONTRACTOR'S WORK WILL BE DONE AT THE CONTRACTOR'S EXPENSE.

GAS GENERAL NOTES

- ALL WORK AND MATERIALS SHALL CONFORM TO THE CURRENT CITY OF MESA GAS OPERATIONS, MAINTENANCE, EMERGENCY RESPONSE, AND CONSTRUCTION PRACTICE MANUAL.
- WHEN GAS MAIN AND/OR SERVICES ARE EXPOSED, CONTACT THE CITY OF MESA AT 480-644-4500 FOR INSPECTION OF THE EXPOSED PIPE AND COATING PRIOR TO BACKFILLING THE TRENCH.
- BEDDING OR SHADING MATERIAL ADJACENT TO THE CITY GAS PIPE SHALL BE SELECT SANDY TYPE SOIL FREE OF ROCK OR DEBRIS THAT WILL PASS THROUGH A 3/8" SCREEN AS INSPECTED AND APPROVED BY THE CITY GAS INSPECTION PERSONNEL.
- THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AS INDICATED ON MESA DETAIL M-58 WHEN TRENCHING FOR THE WATERLINE WHERE A GAS MAIN IS TO BE INSTALLED IN THE SAME TRENCH.
- CONTACT THE GAS DIVISION AT 480-644-2753 FOR SCHEDULING AND COORDINATION OF THE INSTALLATION OF NATURAL GAS MAINS AND/OR SERVICES.
- GAS LINE SHALL MAINTAIN A NOMINAL 12" (MINIMUM OF 8") SEPARATION FROM EXISTING WATER, SEWER, ELECTRICAL, CABLE TV AND TELCO FACILITIES.

LANDSCAPE GENERAL NOTES

- LANDSCAPE CONTRACTOR SHALL CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION AND SHALL BE RESPONSIBLE FOR THE FOLLOWING:
  - DAMAGES TO SUCH UTILITIES CAUSED AS A RESULT OF THE CONTRACTOR'S ACTIVITIES
  - DAMAGES TO EXISTING WALKS, WALLS, DRIVES, CURBS, ETC.
  - INSPECTING THE SITE IN ORDER TO BE FULLY AWARE OF EXISTING CONDITIONS PRIOR TO SUBMITTING A BID.
- INSTALLATION OF ALL LANDSCAPE AND IRRIGATION MATERIALS SHALL COMPLY WITH SECTIONS 424, 425, 757, AND 795 OF THE MAG STANDARD SPECIFICATIONS AS AMENDED BY THE CITY OF MESA IN THE CURRENT EDITION OF THE ENGINEERING PROCEDURES MANUAL, LANDSCAPE AND IRRIGATION STANDARDS.
- CONTRACTOR SHALL REPAIR ANY DAMAGE MADE TO THE EXISTING SPRINKLER SYSTEM TO THE SATISFACTION OF THE CITY AT NO ADDITIONAL COST TO THE CITY.
- LANDSCAPE REMOVAL IS A NON-PAY ITEM UNLESS OTHERWISE NOTED.
- ALL EXISTING VEGETATION, WEEDS, DEBRIS, ETC. SHALL BE REMOVED FROM PROJECT AREA AND DISPOSED OF PROPERLY OFF THE SITE AT THE CONTRACTOR'S EXPENSE.
- DAMAGE TO TURF SHALL BE REPAIRED BY CONTRACTOR, I.E., RUTS FILLED WITH CLEAN SOIL, COMPACTED TO MATCH SURROUNDING GRADES. EXCESS SOIL, ROCK, ETC. SHALL BE REMOVED TO LEAVE THE SITE CLEAN.
- ALL PLANT MATERIAL, OTHER THAN TREES, SHALL CONFORM TO GRADING, TYPE, ETC. AS SET FORTH IN THE AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN. ALL TREES SHALL CONFORM TO THE CURRENT ARIZONA NURSERY ASSOCIATION TREE SPECIFICATIONS AND MAG SPEC 795.7. SHOULD ANY CONFLICTS IN THE SPECIFICATIONS OCCUR, THE ARIZONA NURSERY ASSOCIATION'S SPECIFICATIONS SHALL PREVAIL.
- CITY RESERVES THE RIGHT TO INSPECT SHRUBS AND CONTAINERED TREES FOR CONDITION OF ROOT BALLS. FOR ANY SUCH INSPECTIONS WHICH MAY DESTROY ROOT BALL, CONTRACTOR SHALL SUPPLY ADDITIONAL PLANT AT NO COST TO CITY.
- PLANT PITS SHALL BE INSPECTED BY CITY PRIOR TO PLANTING BY THE CONTRACTOR BY REQUESTING AN INSPECTION 48 HOURS IN ADVANCE.
- ROUGH AND FINE GRADING TO ESTABLISH UNIFORM SMOOTH GRADE IS INCLUDED IN THIS PROJECT.
- SOIL TEST FOR FERTILITY AND ADDITIVE RECOMMENDATIONS (FOR TURF AND ORNAMENTALS) SHALL BE COMPLETED BY CONTRACTOR TO DETERMINE IF ADDITIVES ARE REQUIRED. CONTRACTOR SHALL PROVIDE COPY OF SOIL TEST RESULTS FOR REVIEW AND APPROVAL TO ENGINEERING INSPECTOR AT LEAST SEVEN DAYS PRIOR TO ANTICIPATED PLANTING. AFTER APPROVAL BY THE CITY, THE CONTRACTOR SHALL PROVIDE AND INCORPORATE ANY ADDITIVES REQUIRED PRIOR TO OR AT TIME OF PLANTING.
- PLANT PIT SOIL MIXTURE SHALL CONSIST OF FOUR AND ONE HALF PARTS NATURAL FERTILE, FRIABLE SOIL AND ONE PART HUMUS BY VOLUME, THOROUGHLY MIXED PRIOR TO BACKFILLING IN PITS. BACKFILLING SHALL BE IN 6" LIFTS WITH EACH LIFT WATER SETTLED WITHOUT PUDDLING.
- CONTRACTOR SHALL STAKE TREE AND SHRUB LOCATIONS FOR 5-GALLON PLANTS AND LARGER. STAKES SHALL BE MARKED WITH PLANT NAME OR PLANT LEGEND ITEM NUMBER FROM PLANS.
- ALL EXISTING (GAS, ELECTRIC, WATER, ETC.) COVERS AND BOXES SHALL REMAIN UNCOVERED. CONTRACTOR TO ADJUST TO FINAL GRADE AS NECESSARY. NPI UNLESS OTHERWISE NOTED.
- NOT USED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING THE UNDERGROUND SPRINKLER SYSTEMS IN ADVANCE OF CONSTRUCTION.
- CONTRACTOR TO PROVIDE PUMPING WITHIN FIVE (5) DAYS AFTER THE NOTICE TO PROCEED IS GIVEN AS REQUIRED TO DRY THE AREA SUFFICIENTLY TO BEGIN CONSTRUCTION.
- CONTRACTOR SHALL ARRANGE FOR SPRINKLER SYSTEM SHUTDOWN DURING CONSTRUCTION BY CONTACTING THE ENGINEERING INSPECTOR.
- NO ROCKS LARGER THAN 1" IN DIAMETER SHALL BE ALLOWED IN THE TOP 6" OF TOPSOIL WHERE TURF ESTABLISHMENT IS SPECIFIED. ROCK REMOVAL AS NECESSARY IS INCLUDED IN THIS PROJECT (NPI).
- WHERE CALICHE IS ENCOUNTERED IN PLANT PITS, DEPTH AND WIDTH OF PIT SHALL BE INCREASED BY ONE-THIRD (1/3) OVER SPECIFICATION, AND A LIQUID PENETRATOR, "AL-KALICHE" OR EQUAL, SHALL BE INCORPORATED FOR EACH PIT PER MANUFACTURER'S RECOMMENDATIONS.
- PROJECT RECORD (AS-BUILT) DRAWINGS FOR IRRIGATION SYSTEM:
  - MAINTAIN ON SITE AND SEPARATE FROM DOCUMENTS USED FOR CONSTRUCTION. ONE COMPLETE SET OF CONTRACT DOCUMENTS AS PROJECT RECORD DOCUMENTS. KEEP DOCUMENTS CURRENT. DO NOT PERMANENTLY COVER WORK UNTIL AS-BUILT INFORMATION IS RECORDED.
  - RECORD PIPE AND WIRING NETWORK ALTERATIONS. RECORD WORK WHICH IS INSTALLED DIFFERENTLY THAN SHOWN ON THE CONSTRUCTION DRAWINGS. RECORD ACCURATE REFERENCE DIMENSIONS, MEASURED FROM AT LEAST TWO PERMANENT REFERENCE POINTS, OF EACH IRRIGATION SYSTEM VALVE, EACH BACKFLOW PREVENTION DEVICE, EACH CONTROLLER OR CONTROLLER UNIT, EACH SLEEVE END, EACH STUB-OUT FOR FUTURE PIPE OR WIRING CONNECTIONS, AND OTHER IRRIGATION COMPONENTS ENCLOSED WITHIN A VALVE BOX.
- PRIVATE LANDSCAPE IRRIGATION SYSTEMS SHALL BE MAINTAINED IN GOOD WORKING OPERATING CONDITION AT ALL TIMES. PRIVATE IRRIGATION DAMAGED OR DESTROYED BY CONTRACTOR SHALL BE REPLACED AT NO COST TO CITY OR DISTRICT.

MCDOT NOTES (11/24/2004)

- ALL CONSTRUCTION SHALL CONFORM TO THE LATEST MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION (MCDOT) ROADWAY DESIGN MANUAL AND MAG SPECIFICATIONS AND MARICOPA COUNTY SPECIAL PROVISIONS FOR CONSTRUCTION OF STREET IMPROVEMENTS.
- CONTRACTOR TO OBTAIN NECESSARY MCDOT PERMITS PRIOR TO CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY.
- THE ENGINEERING DESIGNS ON THESE PLANS ARE ONLY APPROVED BY MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION IN SCOPE AND NOT IN DETAIL CONSTRUCTION QUANTITIES ON THESE PLANS ARE NOT VERIFIED BY MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION. APPROVAL OF THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT PREVENT MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION FROM REQUIRING CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW, ORDINANCE, HEALTH, SAFETY, OR OTHER DESIGN ISSUES.
- CONTRACTOR SHALL NOTIFY THE MCDOT INSPECTION DEPARTMENT AT LEAST 24 HOURS IN ADVANCE OF ANY CONSTRUCTION AT (602)506-8606.
- AN APPROVED SET OF PLANS SHALL BE ON THE SITE DURING CONSTRUCTION AND INSPECTIONS.
- CONTRACTOR PERFORMING CONSTRUCTION OR EXCAVATING OPERATIONS IS RESPONSIBLE FOR LOCATING, RELOCATING AND/OR PROTECTING ALL UTILITIES IN CONFLICT OR WITHIN THE CLEAR ZONE, AT NO EXPENSE TO MARICOPA COUNTY.
- ALL COMPACTION AND BACKFILL WITHIN COUNTY RIGHT-OF-WAY SHALL CONFORM TO THE MCDOT SUPPLEMENT TO MAG SPECIFICATIONS. BACKFILL UNDER ANY EXISTING OR PROPOSED PAVEMENT, CURB AND GUTTER OR WITHIN TWO FEET (2') OR LESS FROM THE EDGE OF PAVEMENT SHALL CONSIST OF ONE-HALF (1/2) SACK CLSM.
- ALL STRUCTURES, SUCH AS MANHOLES, VALVE BOX & COVERS, AND MONITORING WELLS MUST BE MARKED WITH AT LEAST TWO REFLECTIVE YELLOW FLEX POST WHEN STRUCTURES ARE LOCATED OUTSIDE THE TRAVELED WAY AND WITHIN THE RIGHT-OF-WAY. ("APPLIES ONLY WHEN THERE IS NO CURB").
- ALL EXISTING PAVEMENT MARKING, TRAFFIC SIGNS AND SIGNAL EQUIPMENT THAT NEEDS TO BE REMOVED, REPLACED, RELOCATED OR REPAIRED BECAUSE OF CONTRACTOR'S WORK WILL BE DONE BY THE CONTRACTOR AT HIS EXPENSE. ALL TRAFFIC SIGNS THAT ARE REMOVED SHALL BE STOCKPILED ON THE PROJECT SITE AND THE CONTRACTOR IS TO NOTIFY THE INSPECTOR WHEN ALL SIGNS HAVE BEEN REMOVED. ALL NEW STREET NAME SIGNS SHALL BE PROVIDED AND INSTALLED BY PERMITTEE AT NO EXPENSE TO MARICOPA COUNTY.
- PAVEMENT MARKING, SIGNING AND SIGNAL WORK WILL BE INSPECTED AND WILL HAVE TO MEET COUNTY STANDARDS BEFORE RELEASE OF BOND.
- ASPHALT MIX DESIGN SHALL BE SUBMITTED TO MCDOT A MINIMUM OF 48 HOURS PRIOR TO PLACING ANY ASPHALT COURSES (TRENCH WORK EXCLUDED).
- PRIOR TO MOVING OR DESTROYING PROTECTED NATIVE PLANT SPECIES, THE CONTRACTOR SHALL FILE A FORMAL NOTICE OF INTENT WITH THE ARIZONA DEPARTMENT OF AGRICULTURE NATIVE PLANTS (602)542-6408.
- EXCEPT UNDER EMERGENCY CONDITIONS, ROADS SHALL NOT BE CLOSED FOR CONSTRUCTION ACTIVITY UNLESS PRIOR APPROVAL IS OBTAINED FROM THE TRANSPORTATION DIRECTOR OR HIS REPRESENTATIVE.
- ALL BOX CULVERTS CONSTRUCTED IN THE PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT) LATEST DESIGN SPECIFICATIONS AND STANDARDS. MINIMUM CLEAR HEIGHT OF BOX CULVERT SHALL BE 4 FEET.
- PRIOR TO INSTALLATION OF THE BASE COURSE AND WEARING SURFACE, SUBMIT SOIL TEST(S) OF SUB-GRADE AND REVISED PAVEMENT DESIGN CALCULATIONS TO THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION FOR REVIEW AND APPROVAL.



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NO.	REVISION	BY	DATE
<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p><b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</b></p>			
		BY	DATE
		DESIGNED	DEJ 10/27/06
		DRAWN	DKS 10/27/06
		CHECKED	RAE 10/27/06
DRAWING NO.	CITY OF MESA		SHEET OF
G3	GENERAL NOTES/MCDOT NOTES		3 73

# LEGEND SHEET

## SYMBOLS

	Brass Cap In Hand Hole
	Benchmark
	Brass Cap
	Bush
	Cactus
	Catch Basin
	Chiseled Square
	Miscellaneous Control Point
	Check Shot
	Electric Manhole
	Electric Meter
	Elevation Reference Mark
	Fire Hydrant
	GDAC
	Gas Meter
	Gas Valve
	Iron Pipe
	Irrigation Manhole
	Light Pole
	Palm Tree
	Power Pole
	Rebar
	Rebar With Cap
	Section Corner
	Storm Drain Manhole
	Proposed Slope Indicator
	Existing Slope Indicator
	Sanitary Sewer Manhole
	Telephone Manhole
	Telephone Pole
	Tree
	Transmission Tower
	Well
	Water Manhole
	Water Meter
	Water Valve

## SYMBOLS

	Flow Direction
	Mail Box

## LINESTYLES

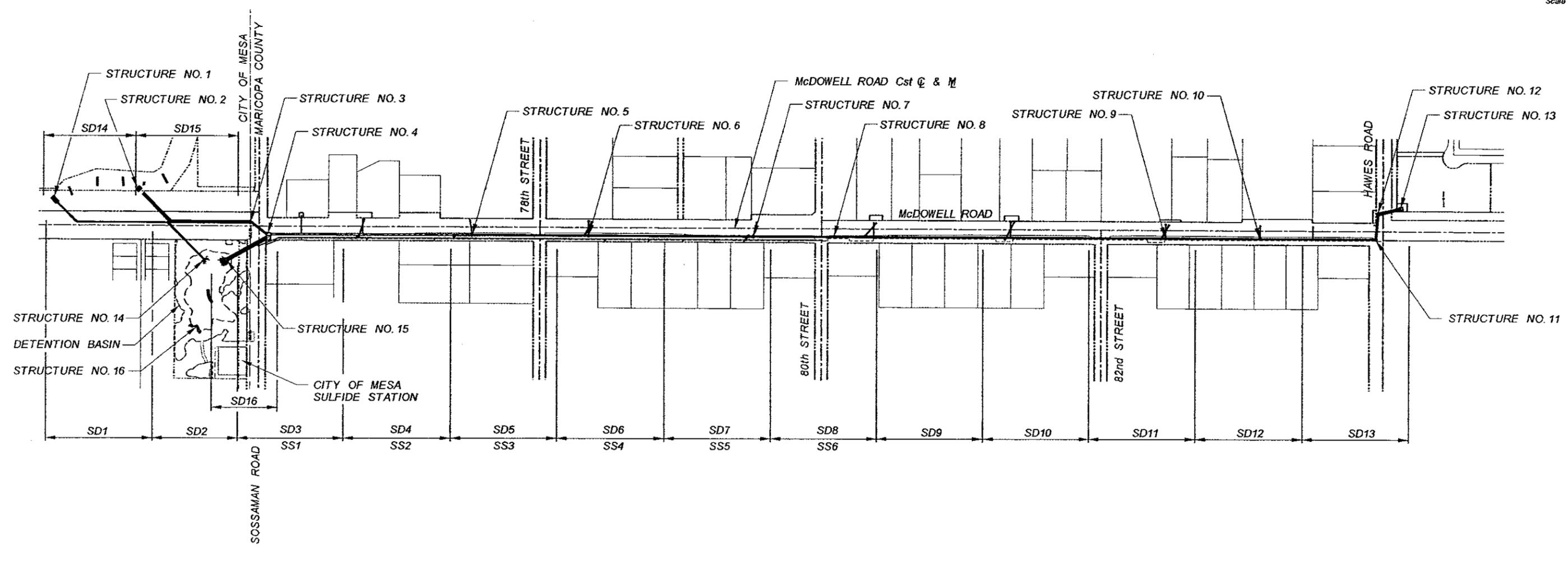
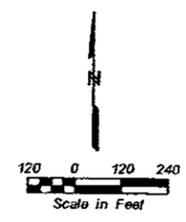
	Centerline
	Cut Line
	Fiber Optic Line
	Fill Line
	Forest/Indian Reservation Line
	High Pressure Gas Line
	Irrigation Line
	Proposed Chain Link Fence Line
	Proposed Fence Line
	Proposed Gas Line
	Proposed Overhead Power Line
	Proposed Overhead Telephone Line
	Proposed Retaining Wall
	Proposed R/W
	Proposed Sanitary Sewer Line
	Proposed Underground Power Line
	Proposed Underground Telephone Line
	Proposed Underground Cable Television Line
	Proposed Water Line
	Proposed Wood Fence Line
	Proposed Storm Drain (width varies 72" pipe shown)
	Section Line
	Temporary Construction Easement
	Tree Line
	Wash Flow Line
	Existing Water Surface Elevation (Profile Views Only)
	Proposed Water Surface Elevation (Profile Views Only)
	Existing Block Wall
	Existing Chain Link Fence Line
	Existing Fence Line
	Existing Gas Line And Size (Inches)
	Existing Left Guardrail
	Existing Right Guardrail
	Existing Irrigation Line
	Existing Overhead Electric Line
	Existing Overhead Telephone Line
	Existing Curb and Gutter

## LINESTYLES

	Existing Retaining Wall
	Existing Edge Of Paved Road
	Existing R/W
	Existing Sanitary Sewer Line
	Existing Storm Drain Pipe And Size
	Existing Underground Power Line
	Existing Underground Telephone Line
	Existing Underground Cable Television Line
	Existing Water Line And Size
	Existing Wood Fence Line



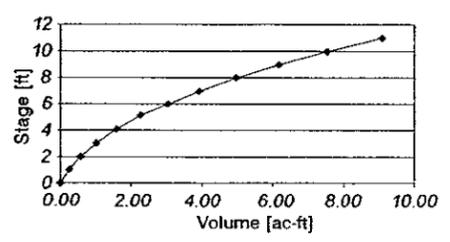
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	DEJ		10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06
		Kimley-Horn and Associates, Inc.	
DRAWING NO.	LEGEND SHEET		SHEET OF
G4	SYMBOLS AND LINESTYLES		4 73



DESIGN FLOW RATES (100YR, 24 HR. STORM)

STATION	DISCHARGE
BASIN	300
10+50	404
12+00	704
14+90	698
20+00	694
25+47	658
33+18	615
38+94	589
45+38	581
62+45	559
63+50	519

DETENTION BASIN RATING CURVE



LEGEND

- SD - STORM DRAIN PLANS
- SS - SANITARY SEWER PLANS



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		BY	DATE
		DESIGNED	DEJ 10/27/06
		DRAWN	DKS 10/27/06
		CHECKED	RAE 10/27/06
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# ALTERNATE PIPE MATERIALS

MAIN LINE PIPE <sup>(3)</sup>															
STATION		QUANTITY LF.	PIPE DIAMETER			DEPTH TO TOP OF PIPE		MAX TRENCH WIDTH AT TOP OF PIPE	REINFORCED CONCRETE PIPE	N.R.C.P. ASTM C14 CLASS	CIP CONCRETE PIPE	CONCRETE LINED CORRUGATED METAL PIPE			
			RCP (I.D.) IN.	CIP (I.D.) IN.	CLCMP (I.D.) IN.	MIN. (FT.)	MAX. (FT.)					RCP FT.	SLURRY BEDDING TO SPRING LINE		SLURRY BEDDING TO TOP OF PIPE
FROM	TO									MINIMUM WALL THICKNESS IN.	2 2/3"x1/2" CORR. TYPE "F" MIN. GAGE	3"x1" CORR. TYPE "F" MIN. GAGE	2 2/3"x1/2" CORR. TYPE "F" MIN. GAGE	3"x1" CORR. TYPE "F" MIN. GAGE	
1+00	7+41	891	48			3.2	9.9	6.75	III						
0+00	1+00		48			0	3.2	6.75	V						
0+00	9+61	555	3-42			0	4	8.5	V						
5+40	9+61	1132	2-54			4.0	8.4	15	III						
4+52	5+40		2-54			2.1	4	15	V						
10+40	14+96	455	90			3.8	7.4	10.5	III						
15+00	38+91	2376	78			2	8.4	9.5	III						
38+96	63+50	2560	72			2	7.8	9	III						

CONNECTOR PIPE <sup>(3)</sup> *										
LOCATION	QUANTITY LF.	DEPTH TO TOP OF PIPE		PIPE DIA. NRCP RCP (I.D.) IN.	RCP CLASS	PIPE DIAMETER CIP (I.D.) IN.	CMP 2 2/3"x1/2" CORR. TYPE "A" MIN. GAGE	HDPE		
		MIN. (FT.)	MAX. (FT.)							
12+00	80	3	10		III	18		18		
14+90	65	3	12		III	18		18		
20+00	81	3	10		III	24		24		
25+48	60	2	10.4		III	24		24		
33.26	63	2	9.6		III	24		24		
38+86	62	3	7		III	18		18		
45+31	56	2	6		III	24		24		
52+59	57	2	9.6		III	24		24		
57+01	55	2	7.6		III	24		24		
59+48	63	3.4	7.8		III	18		18		
62+32	14	1	4.8		III	18		18		

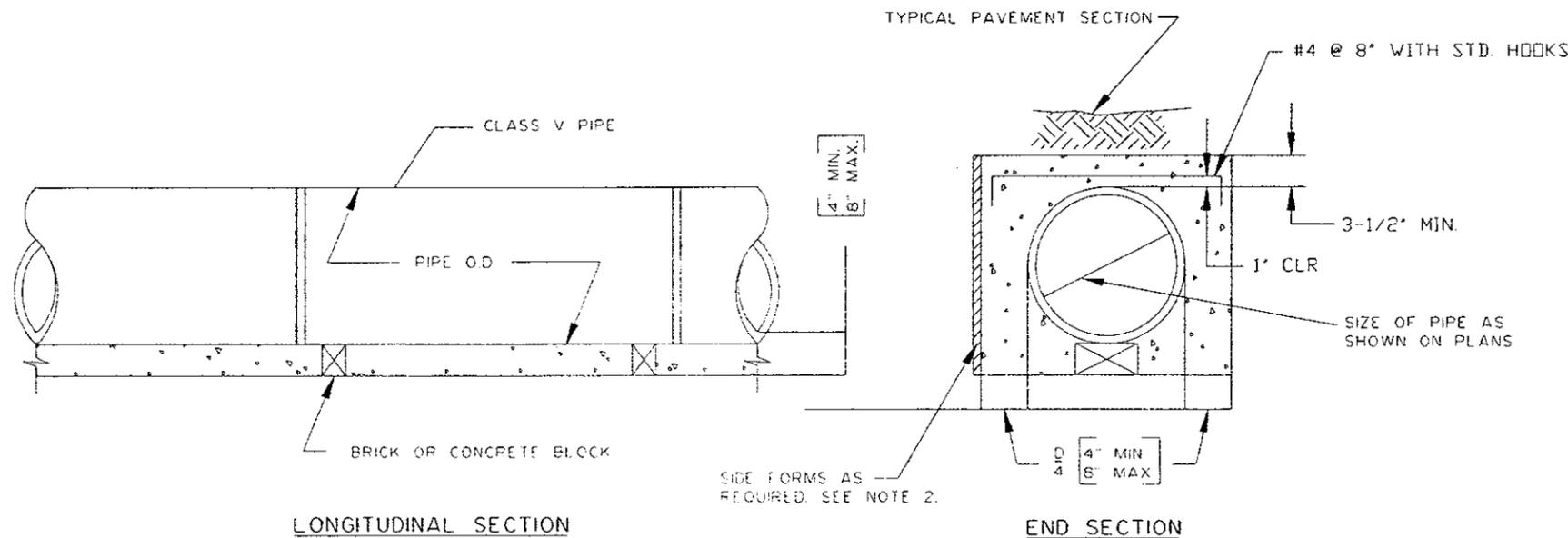
**NOTES**

1. THIS DETAIL SHALL BE REQUIRED WHEN NEW OR EXISTING PIPE INSTALLATIONS WILL BE SUBJECT TO DAMAGE ANYTIME IN THE FUTURE DUE TO LACK OF PROPER COVER, AS DETERMINED BY THE ENGINEER.
2. FOR PIPE OVER 18" I.D. WOOD, METAL OR GYPSUM BOARD FORMS MUST BE USED TO FORM THE SIDES OF THE ENCASEMENT. GYPSUM BOARD FORMS MAY BE LEFT IN THE GROUND BELOW THE TOP OF THE ENCASEMENT. THIS SHALL BE OPTIONAL WITH POURING AGAINST TRENCH WALLS FOR ENCASEMENT OF 18" AND SMALLER PIPE.
3. FOR ALL SITUATIONS WHERE SIDE FORMS ARE USED, TRENCH WALLS SHALL BE OVER-EXCAVATED TO ALLOW SUFFICIENT ROOM TO OPERATE PROPER MECHANICAL COMPACTION EQUIPMENT.
4. CONCRETE WHICH SPILLS BEYOND 12" FROM THE SIDES OF THE PIPE FOR ANY REASON SHALL BE REMOVED BACK TO THE PROPER LINE PRIOR TO BACKFILLING.
5. SEE SECT. 601 FOR TRENCH PREPARATION.
6. CONCRETE TO BE CLASS 'A' PER SECT. 725.

\* CLSM BACKFILL TO SUBRADE

CULVERTS <sup>(4)</sup>										
LOCATION	QUANTITY LF.	DEPTH TO TOP OF PIPE		SKEW	RCP CLASS	PIPE DIAMETER CIP (I.D.) IN.	END TREATMENT			
		MIN. (FT.)	MAX. (FT.)							
14+77.6 **	72				V	18	MAG 545			
19+57.0	8				V	50"x31" Arch	MAG 501-3			
25+46.2 **	124				V	2-18	MAG 545			
33+04.0	16				V	24	MAG 545			
38.71.0 **	74				V	18	MAG 545			
45+25.3 **	78				V	18	MAG 545			
52+61.4 **	126				V	2-18	MAG 545			

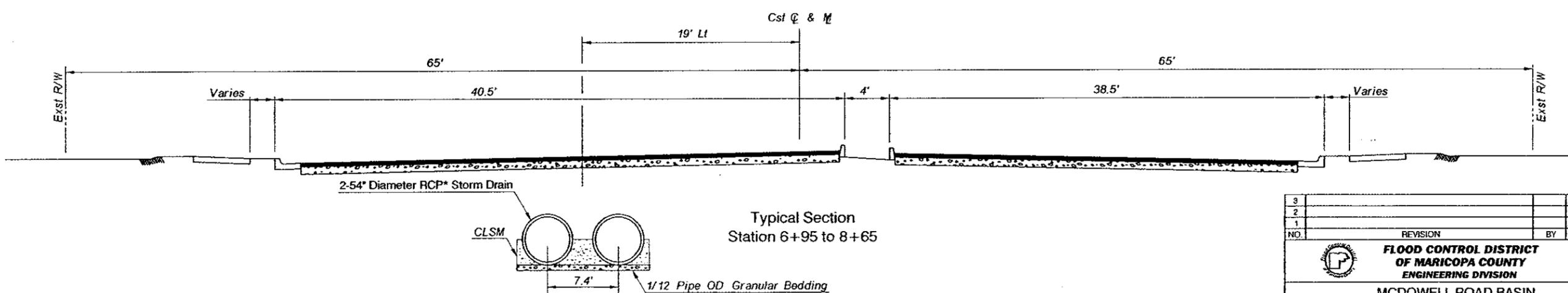
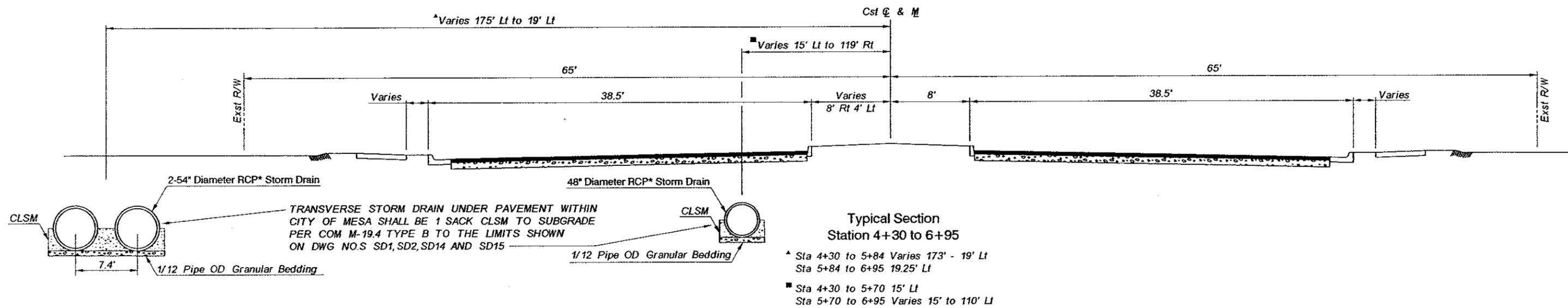
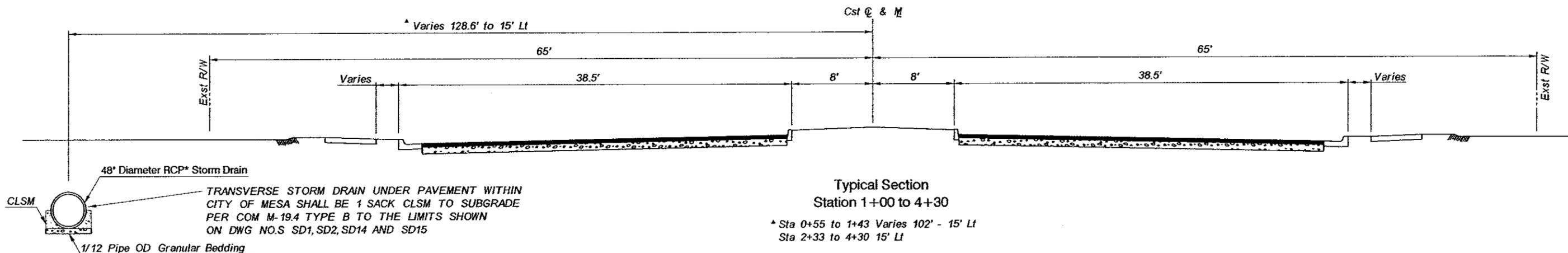
\*\* SEE ENCASEMENT DETAIL THIS SHEET



MODIFIED MAG STANDARD DETAIL 507

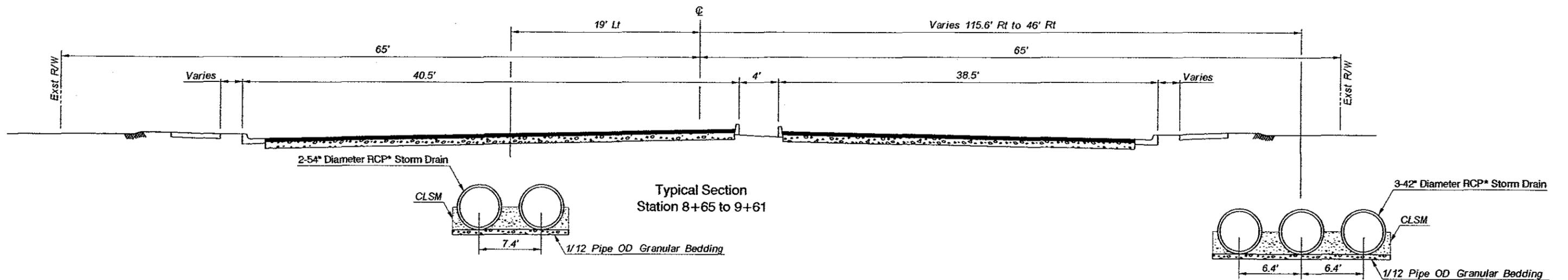
- MAIN LINE PIPE**
1. ONLY PIPE MATERIAL SPECIFIED ON THIS SHEET ARE ACCEPTABLE FOR THIS PROJECT.
  2. WHERE MAXIMUM TRENCH WIDTH IS NOTED AS "UNRESTRICTED" PIPE STRENGTHS ARE SPECIFIED FOR A POSITIVE PROJECTING OR EMBANKMENT LOADING CONDITION. TRENCH WIDTH RESTRICTIONS FOR THE CAST IN PLACE CONCRETE OPERATION, SHALL COMPLY WITH MAG SECTION 620.
  3. MAIN LINE PIPE SHALL BE RUBBER GASKET REINFORCED CONCRETE PIPE.
  4. CULVERTS SHALL BE RUBBER GASKET REINFORCED CONCRETE PIPE.

3					
2					
1					
NO.	REVISION	BY	DATE		
<b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> <b>ENGINEERING DIVISION</b> <b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> <b>PCN 420.03.31</b>					
		DESIGNED	DEJ	DATE	10/27/06
		DRAWN	DKS	DATE	10/27/06
		CHECKED	RAE	DATE	10/27/06
DRAWING NO. PS1		PIPE SUMMARY SHEET		SHEET OF 8 73	

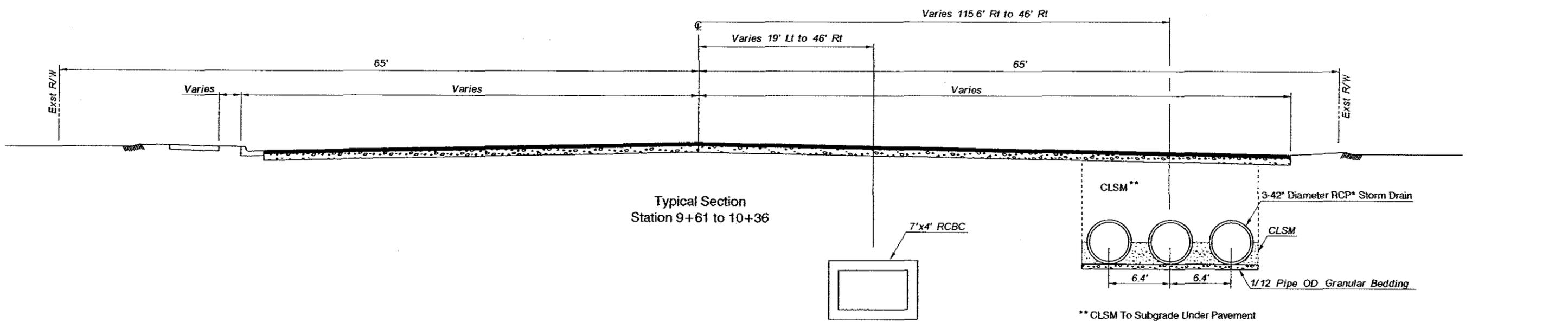


\* ALL MAINLINE STORMDRAIN PIPES SHALL BE RUBBER GASKET REINFORCED PIPE (RGRCP)

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
		BY	DATE
DESIGNED	DEJ		10/27/06
DRAWN	DKS		10/27/06
CHECKED	RAE		10/27/06
		 Kinley-Horn and Associates, Inc.	
DRAWING NO.	TYPICAL SECTIONS		SHEET OF
G6			9 73



Typical Section  
Station 8+65 to 9+61

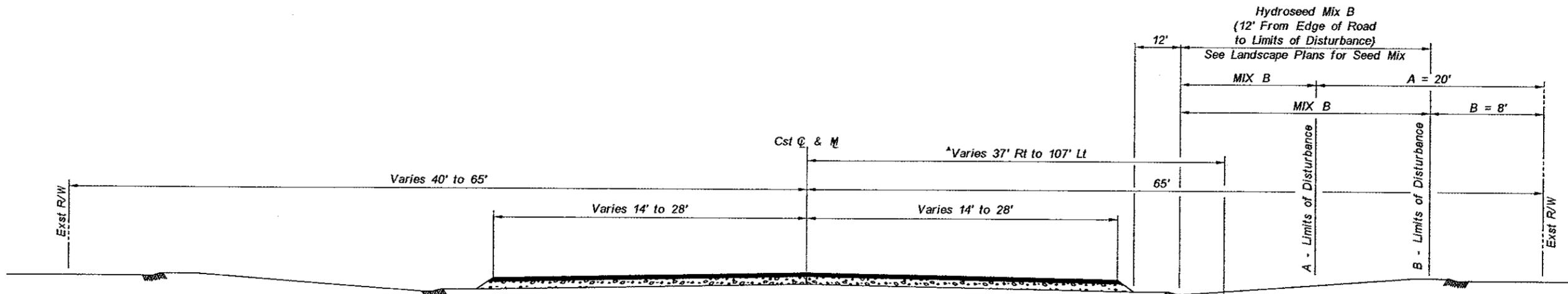


Typical Section  
Station 9+61 to 10+36

\*\* CLSM To Subgrade Under Pavement

\* ALL MAINLINE STORMDRAIN PIPES SHALL BE RUBBER GASKET REINFORCED PIPE (RGRCP)

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> <b>ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> <b>PCN 420.03.31</b>			
		BY	DATE
	DESIGNED	DEJ	10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06
		 Kinley-Horn and Associates, Inc.	
DRAWING NO.	TYPICAL SECTIONS		SHEET OF
G7			10 73



DO NOT DISTURB LIMITS		
Limit	FT	Sta to Sta
A	20	36+70 to 62+50
B	8	10+80 to 36+70

Typical Section  
Station 10+36 to 62+54

<sup>A</sup> Sta 12+00 to 62.39 37' Rt  
Sta 62+39 to 62+54 Varies 37' Rt to 107' Lt

72" - 90" Diameter RCP\* Storm Drain

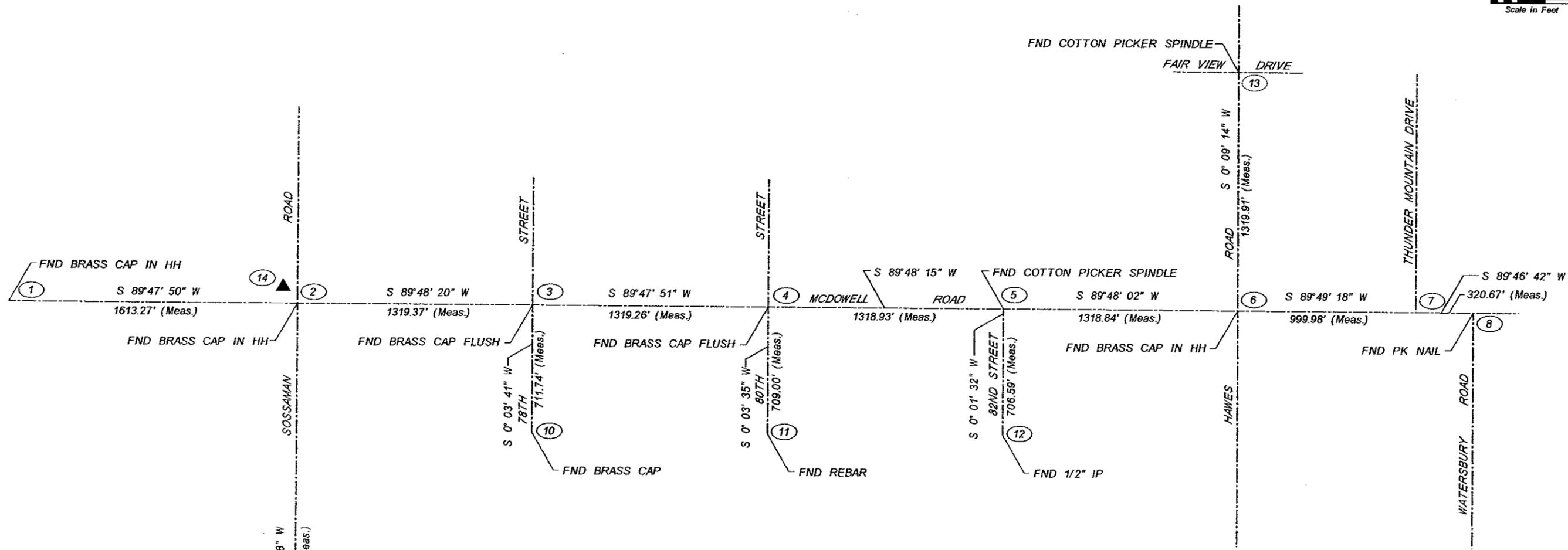
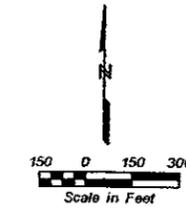
CLSM  
OUTSIDE OF PAVEMENT  
TO SPRINGLINE

1/12 Pipe OD Granular Bedding

**CLSM TO SUBGRADE UNDER PAVEMENT	
Sta to Sta	
22+90	to 23+40
36+10	to 36+60
49+30	to 49+80
62+42	to 63+00

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
	DESIGNED	DEJ	10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06
 Kimley-Horn and Associates, Inc.			
DRAWING NO.	TYPICAL SECTIONS		SHEET OF
G8			11 73

\* ALL MAINLINE STORMDRAIN PIPES SHALL BE RUBBER GASKET REINFORCED PIPE ( RGRCP)



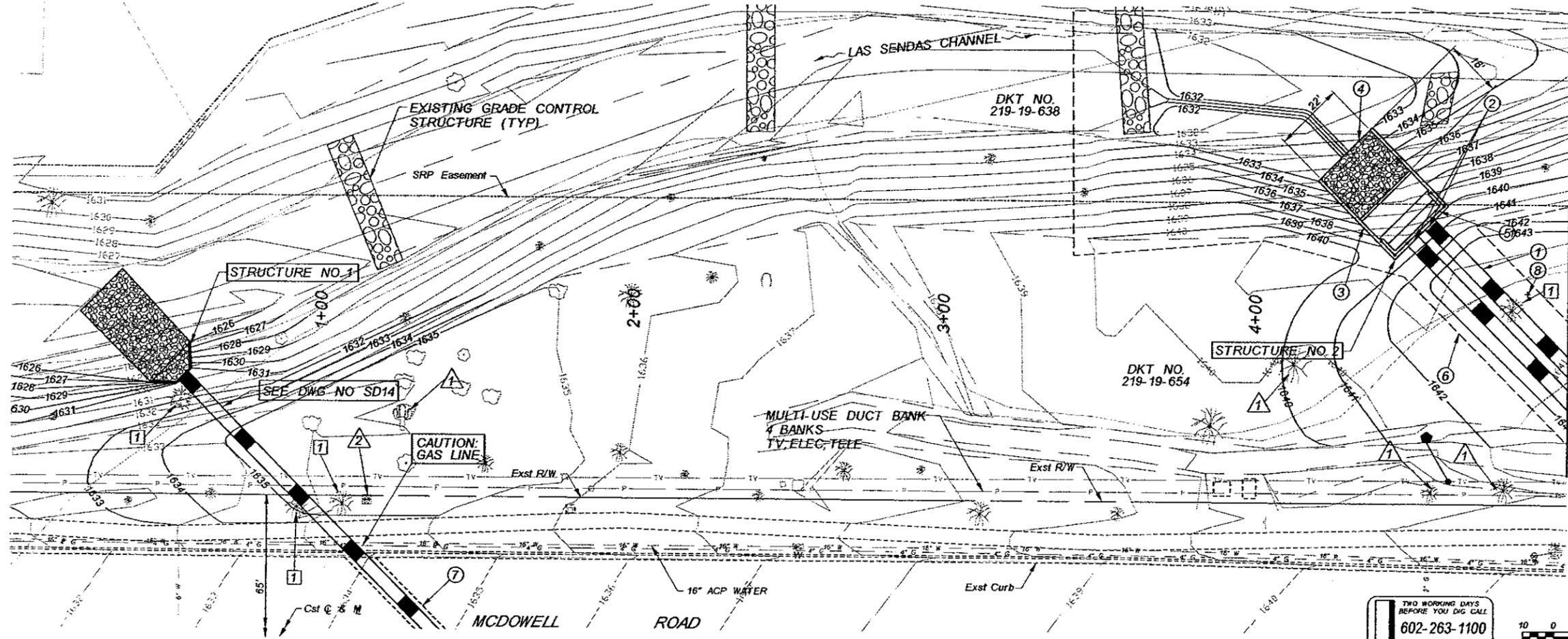
	NORTHING	EASTING	ELEVATION	DESCRIPTION
①	897263.53600	774470.74000	1619.90	BRASS CAP IN HAND HOLE CENTERLINE MCDOWELL ROAD AND RIDGECREST
②	897257.82500	776084.00000	1649.32	BRASS CAP IN HAND HOLE CENTERLINE MCDOWELL ROAD AND SOSSAMAN ROAD
③	897253.34600	777403.36100	1671.88	BRASS CAP CENTERLINE MCDOWELL ROAD AND 78TH STREET
④	897248.68000	778722.61000	1696.89	BRASS CAP IN HAND HOLE CENTERLINE MCDOWELL ROAD AND 80TH STREET
⑤	897244.17100	780041.53000	1724.18	COTTON PICKER SPINDLE CENTERLINE MCDOWELL ROAD AND 82ND STREET
⑥	897239.58200	781360.36000	1754.28	BRASS CAP IN HAND HOLE CENTERLINE MCDOWELL ROAD AND HAWES ROAD
⑦	897236.47000	782360.33300	1776.93	BRASS CAP CENTERLINE MCDOWELL ROAD AND THUNDER MOUNTAIN DRIVE
⑧	897235.23000	782681.00200	1784.38	PK NAIL CENTERLINE MCDOWELL ROAD AND WATERBURY ROAD
⑨	894510.46500	776080.55700	1619.21	BRASS CAP CENTERLINE SOSSAMAN ROAD AND HERMOSA VISTA
⑩	896541.60700	777402.59800	1663.70	BRASS CAP CENTERLINE 78TH STREET AND WILLETTA
⑪	896539.68600	778721.87300	1685.60	REBAR CENTERLINE 80TH STREET AND WILLETTA
⑫	896537.57700	780041.21400	1711.71	1/2" IRON PIPE CENTERLINE 82ND STREET AND WILLETTA
⑬	898559.47800	781356.81300	1781.08	COTTON PICKER SPINDLE CENTERLINE HAWES ROAD AND FAIR VIEW DRIVE
▲⑭	897294.06900	776033.54300	1648.84	BRASS CAP TOP OF CURB NORTHWEST CORNER OF MCDOWELL RD AND SOSSAMAN RD

FND BRASS CAP  
HERMOSA VISTA ⑨

CITY OF MESA BENCHMARK  
BRASS CAP TOP OF CURB NORTHWEST CORNER  
OF MCDOWELL RD AND SOSSAMAN RD  
ELEV = 1648.87  
VERTICAL DATUM: CITY OF MESA

TWO WORKING DAYS  
BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE

3			
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1			
NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</b>			
DESIGNED		DEJ	10/27/06
DRAWN		DKS	10/27/06
CHECKED		RAE	10/27/06
		 Krimley-Horn and Associates, Inc.	
DRAWING NO. 69	GEOMETRIC LAYOUT		SHEET OF 12 73



☐ REMOVE ☐

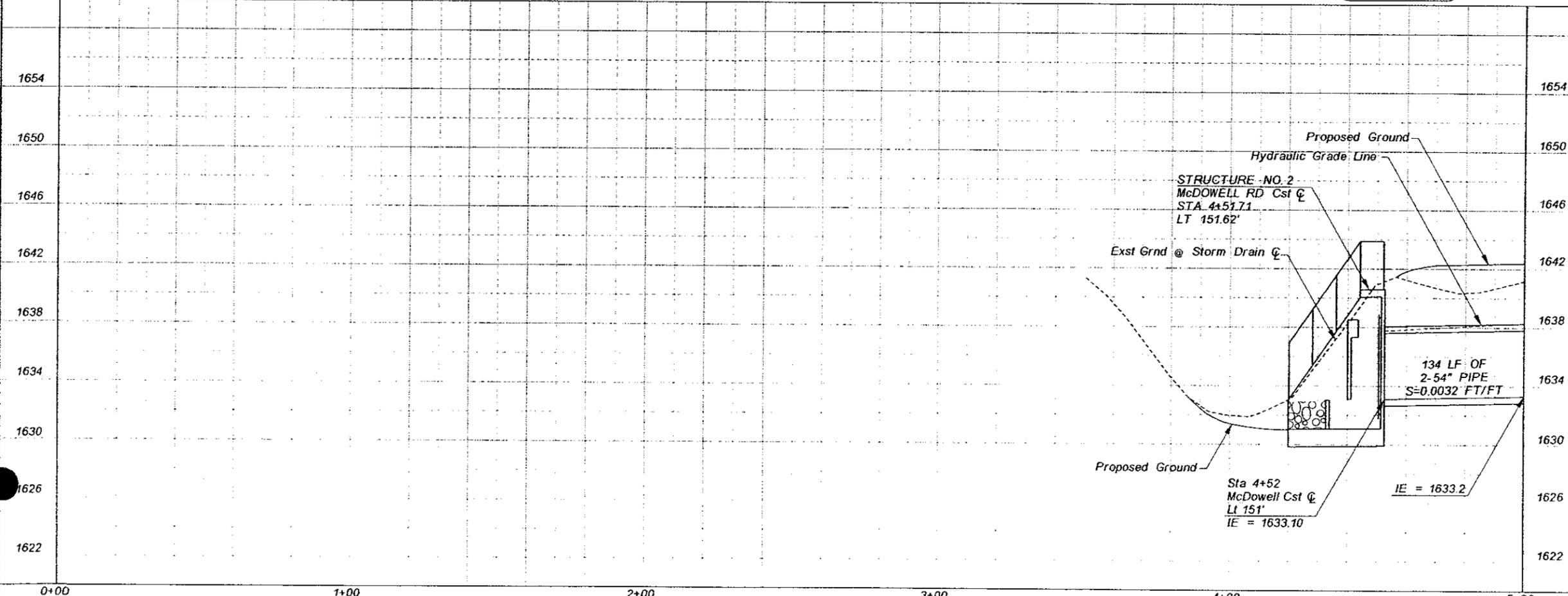
① REMOVE EXISTING VEGETATION (NPI)

---

○ CONSTRUCT ○

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	4+51.71 - 5+00 CLASS V	2-54"	134
②	INSTALL 54" STORM DRAIN ACCESS BARRIER PER COP DETAIL P1563		2 EA
③	CONSTRUCT STRUCTURE NO. 2 SEE DETAIL ST3		1 EA
④	CONSTRUCT RIP-RAP EROSION BLANKET TYPE II, $d_{50} = 1'$ , LENGTH = 18 FT WIDTH = 22 FT, DEPTH = 2 FT		48 SY
⑤	STEEL HANDRAIL PER MAG STD DET 145		92 LF
⑥	HYDROSEED LIMITS TYPE B		0.3 AC
⑦	1 SACK CLSM TO SUBGRADE PER COM M-19.4 TYPE B (NPI)		
⑧	INSTALL 24-IN BOX TREE COMPLETE FOOTHILLS PALO VERDE (DETAIL 4 DWG LP-3)		1 EA



NOTES:

- THE EXISTING PRIVATE IRRIGATION SYSTEM ALONG LAS SENDAS CHANNEL WITHIN THE LIMITS OF WORK SHALL BE MAINTAINED IN A SATISFACTORY OPERATIONAL CONDITION AT ALL TIMES. SEE CITY OF MESA LANDSCAPE NOTE 3 ON DWG NO. G3 AND IRRIGATION NOTE 34 ON DWG NO. LN1.
- GRADING SHALL BE CONSTRUCTED PER CONTOURS ON PLAN VIEW (NPI).
- CONTRACTOR TO REPLACE ALL GROUND COVER WITHIN GRADED AREA (NPI).

① PROTECT IN PLACE VEGETATION (NPI)

② PROTECT IN PLACE (NPI) IRRIGATION VALVES (2)

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5

● INDICATES POTHOLE LOCATION

■ INDICATES POTHOLE ELEVATION

NO.	REVISION	BY	DATE
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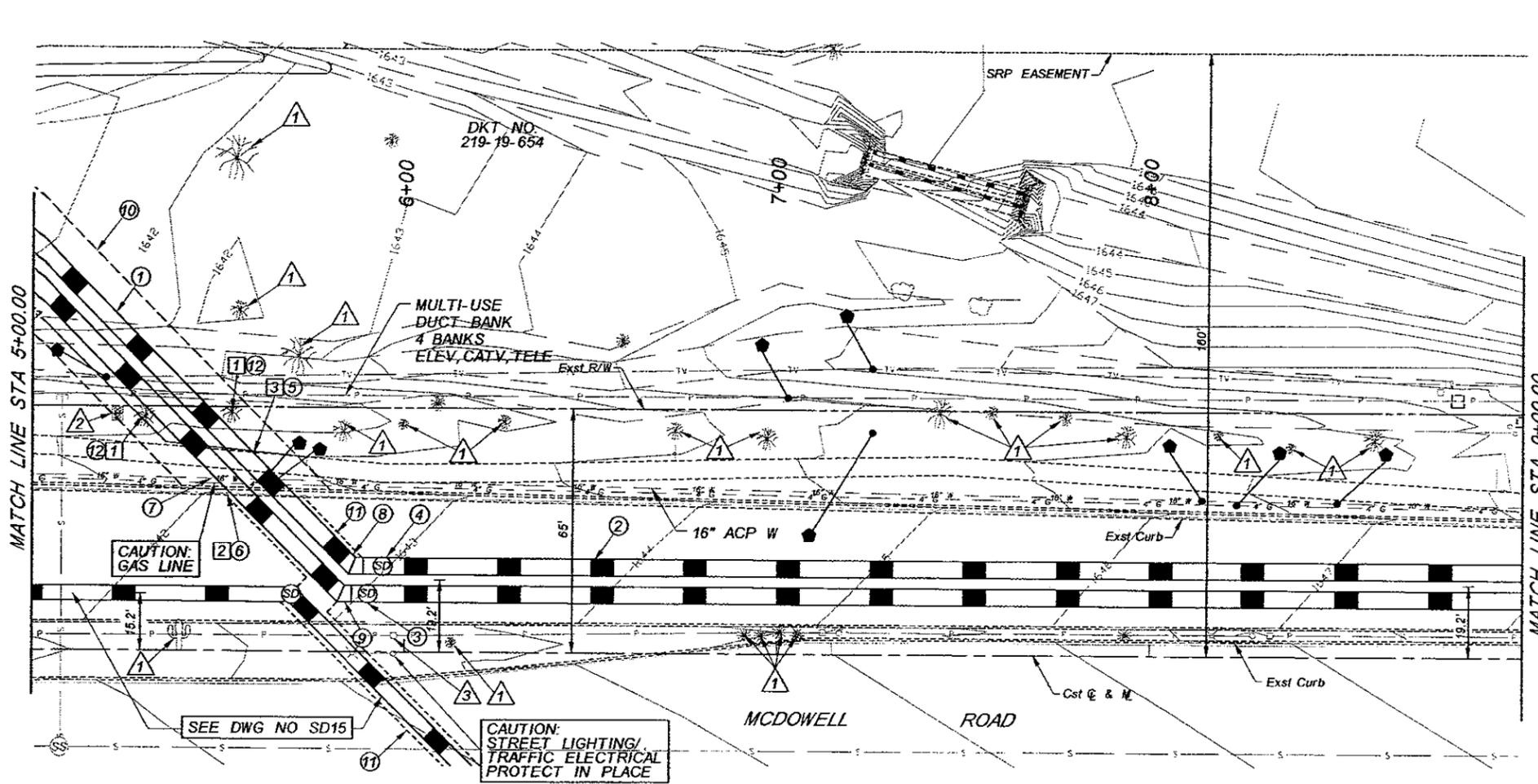
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	BY	DATE
DEJ		10/27/06
DRAWN	BY	DATE
DKS		10/27/06
CHECKED	BY	DATE
RAE		10/27/06

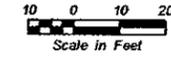
**Kimley-Horn and Associates, Inc.**

DRAWING NO.	PLAN AND PROFILE SHEET	SHEET OF
SD1	STA 0+00 TO STA 5+00	13 73



NOTE:  
 THE EXISTING PRIVATE IRRIGATION SYSTEM  
 ALONG LAS SENDAS CHANNEL WITHIN THE  
 LIMITS OF WORK SHALL BE MAINTAINED IN  
 A SATISFACTORY OPERATIONAL CONDITION  
 AT ALL TIMES. SEE CITY OF MESA  
 LANDSCAPE NOTE 3 ON DWG NO. G3 AND  
 IRRIGATION NOTE 34 ON DWG NO. LN1.

TWO WORKING DAYS  
 BEFORE YOU DIG CALL  
**602-263-1100**  
 BLUE STAKE



- REMOVE
- ① REMOVE EXISTING VEGETATION (NPI)
- ② REMOVE EXISTING CURB AND GUTTER 21 LF
- ③ REMOVE EXISTING SIDEWALK 12 SY

○ CONSTRUCT ○

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	5+00 - 5+85 CLASS V	2-54	238
②	5+85 - 9+00 CLASS III	2-54	632

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
③	5+90.0, 15.5' LI MH NO 3	521	420-2
④	5+94.0, 23.0' LI MH NO 4	521	420-2

- ⑤ CONSTRUCT NEW SIDEWALK PER MAG STD DET 230 12 SY
- ⑥ CONSTRUCT NEW CURB & GUTTER PER MAG STD DET 220, TYPE A 21 LF
- ⑦ RELOCATE 16" WATERLINE PER DETAIL UT1 AND UT2 38 LF

INSTALL NEW PREFABRICATED FITTING

NO.	STATION	SIZE
⑧	5+82.7, 15.5' LI	54"X54"X45' BEND
⑨	5+85.8, 22.9' LI	54"X54"X45' BEND

- ⑩ HYDROSEED LIMITS TYPE B 0.1 AC
- ⑪ 1 SACK CLSM TO SUBGRADE PER COM M-19.4 TYPE B (NPI)
- ⑫ INSTALL 24-IN BOX TREE, COMPLETE FOOTHILLS PALO VERDE (DETAIL 4 DWG LP-3) 2 EA

- △ PROTECT IN PLACE VEGETATION (NPI)
- △ PROTECT IN PLACE (NPI) IRRIGATION VALVES
- △ PROTECT IN PLACE ELECTRIC JUNCTION BOX AND STREET LIGHT CONDUITS (NPI)
- PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5
- ◆ INDICATES POT HOLE LOCATION
- INDICATES POT HOLE ELEVATION

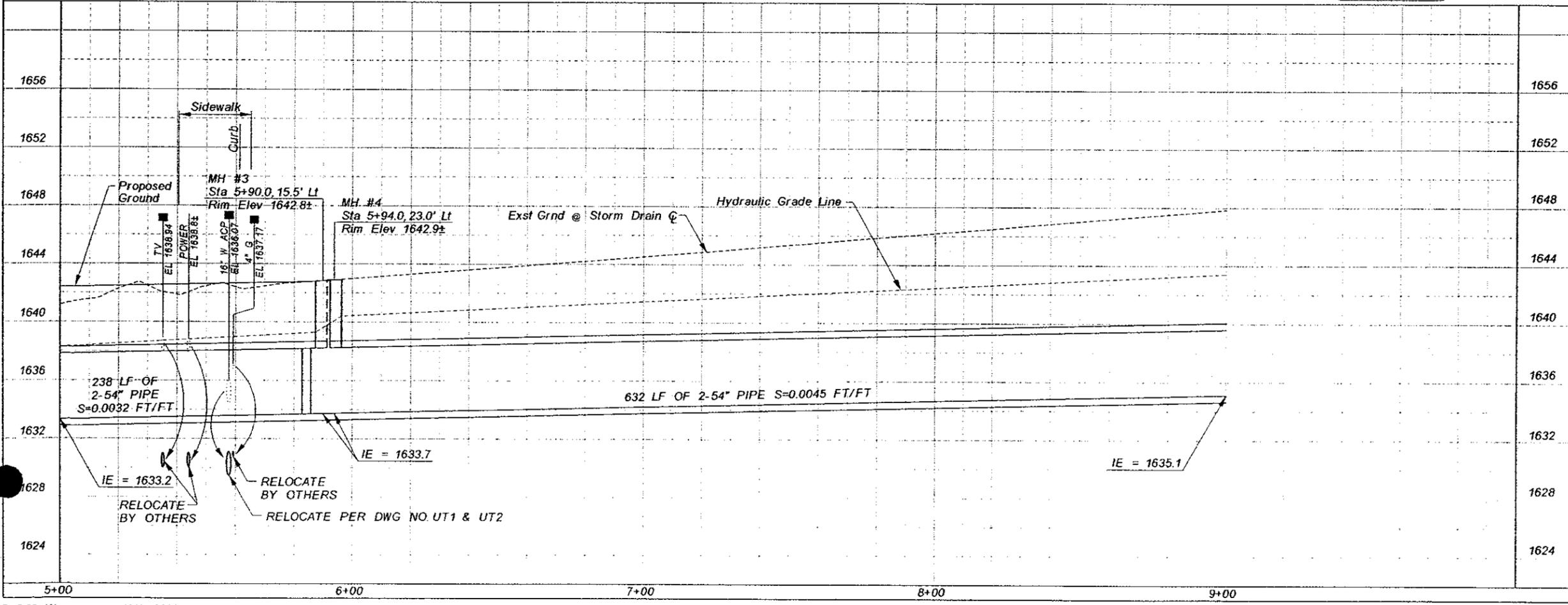
NO.	REVISION	BY	DATE
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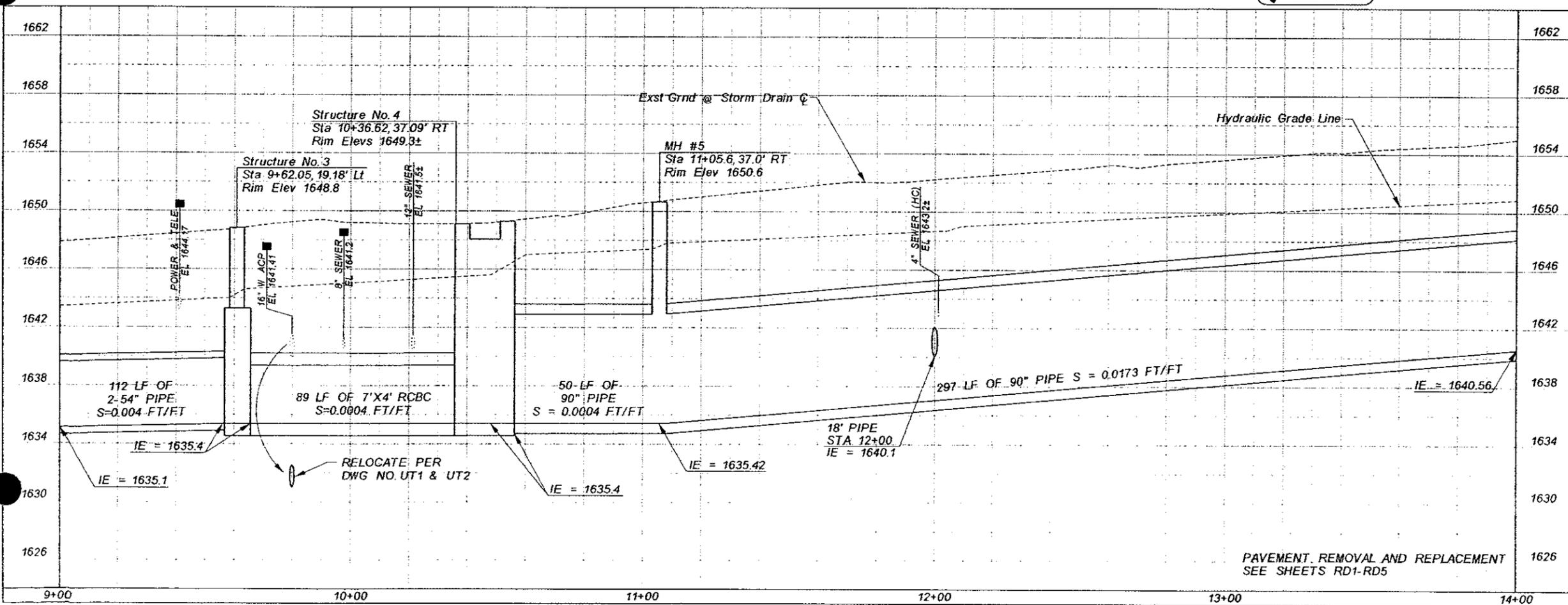
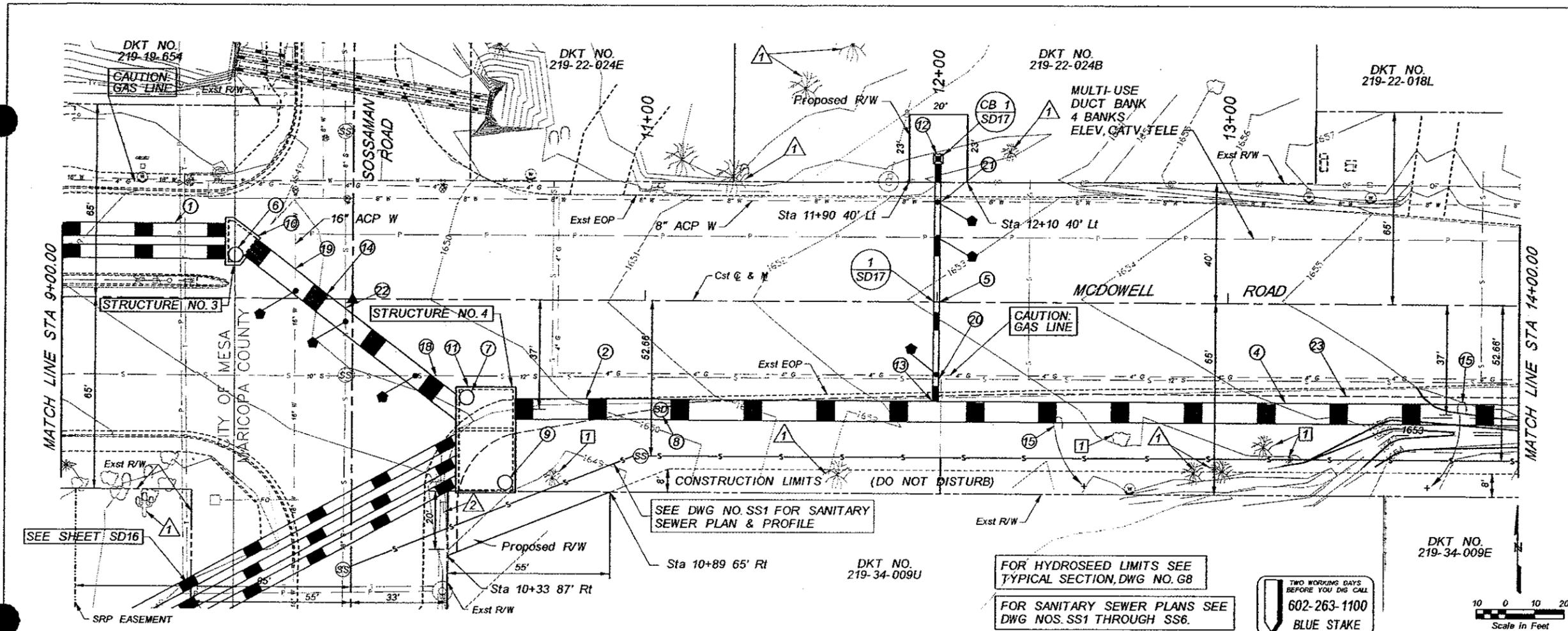
**FLOOD CONTROL DISTRICT  
 OF MARICOPA COUNTY  
 ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN  
 AND STORM DRAIN PROJECT  
 PCN 420.03.31**

	BY	DATE
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

DRAWING NO. SD2 PLAN AND PROFILE SHEET STA 5+00 TO STA 9+00 SHEET OF 14 73





REMOVE

1 REMOVE EXISTING VEGETATION (NPI)

CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	9+00 - 9+60.9 CLASS III	2-54	112
2	10+44.4 - 11+05.5 CLASS III	90	50
3	NOT USED		
4	11+98.5 - 14+00 CLASS III	90	297
5	12+00 (37' RT - 50' LT) CLASS III	18	82

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
6	9+59.6	STRUCTURE NO 3	420-2
7	10+39.4	STRUCTURE NO 4	420-2
8	11+05.6 MH #5	COP P1560	420-1
9	10+52.8	STRUCTURE NO 4	420-2

10 CONSTRUCT STRUCTURE NO.3 SEE DETAIL ST4 1 EA  
 11 CONSTRUCT STRUCTURE NO.4 SEE DETAIL ST5 1 EA  
 12 CONSTRUCT 2' X 2' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 (SEE DWG ST1). 1 EA

INSTALL NEW PREFABRICATED FITTING

NO.	STATION	SIZE
13	12+00	90" X 90" X 18" TEE

INSTALL NEW RCBC (SEE DETAIL DWG NO ST2)

NO.	STATION	WIDTH HEIGHT	LENGTH FEET
14	9+62.05 - 10+36.62	7' X 4'	89

15 RELOCATE CACTUS (NPI)  
 18 INSTALL PIPE SUPPORT PER MAG STD DET 403-3 16 LF  
 19 RELOCATE 16" WATERLINE PER DETAIL UT1 & UT2 29 LF  
 20 PIPE SUPPORT PER MAG STD DTL 403-3 6 LF  
 21 RELOCATE 8" WATERLINE PER MAG STD DET 370 12 LF  
 22 PIPE SUPPORT PER MAG STD DTL 403-3 12 LF  
 23 HYDROSEED LIMITS TYPE B 0.22 AC

1 PROTECT IN PLACE VEGETATION (NPI)  
 2 PROTECT IN PLACE (DOWN GUY) COORDINATE WITH SRP  
 ● INDICATES POT HOLE LOCATION  
 ■ INDICATES POT HOLE ELEVATION

NO.	REVISION	BY	DATE
3			
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

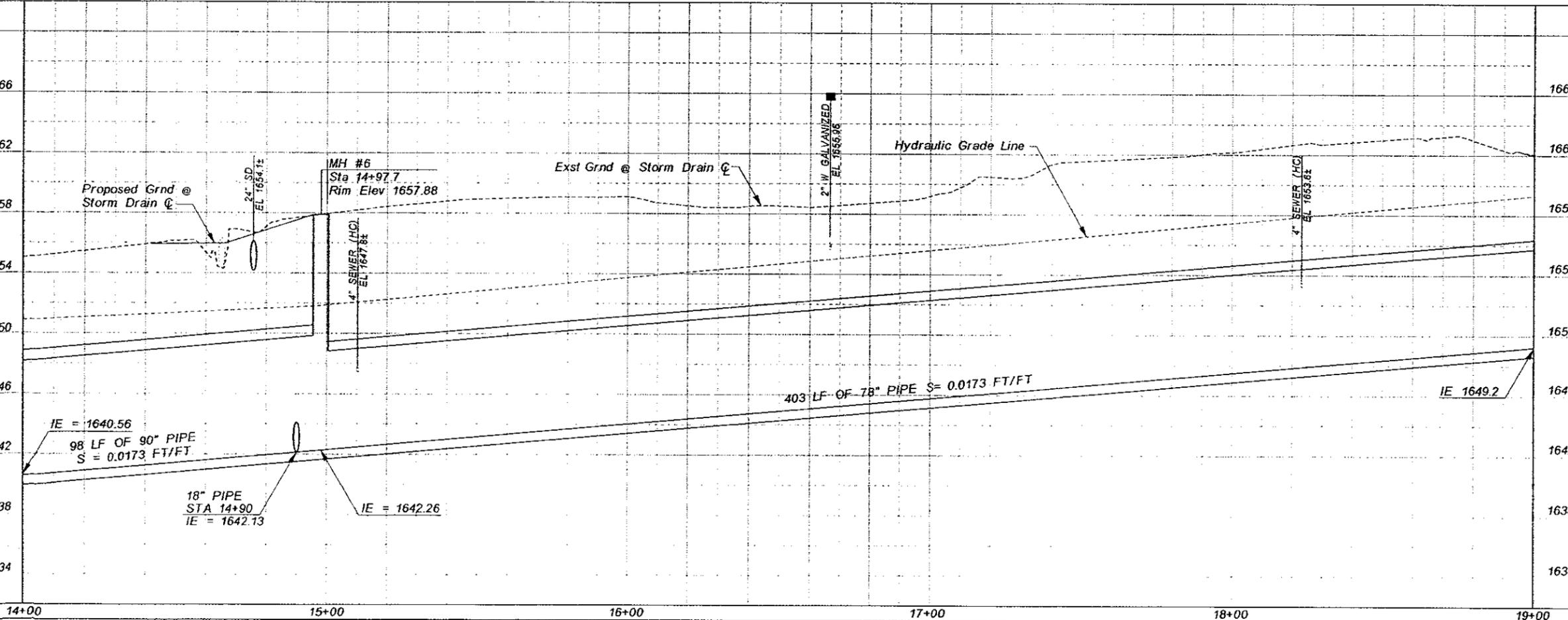
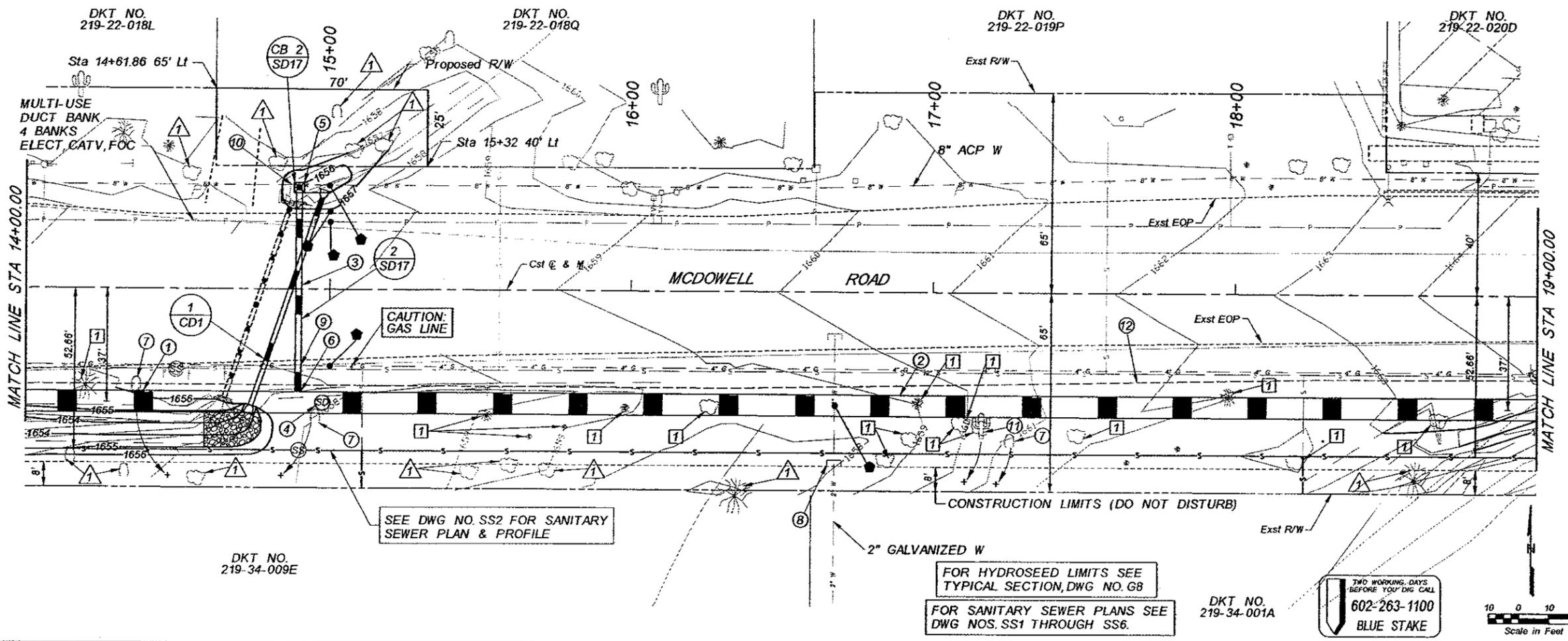
**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	DEJ	DATE
24767 ROBERT A EICHINGER	DEJ	10/27/06
CHECKED	RAE	10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO.	PLAN AND PROFILE SHEET	SHEET OF
SD3	STA 9+00 TO STA 14+00	15 73

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5



REMOVE

1 REMOVE EXISTING VEGETATION (NPI)

CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	14+00 - 14+97.7 CLASS III	90	98
2	14+97.7 - 19+00 CLASS III	78	403
3	14+90 (37' RT - 35' LT) CLASS III	18	65

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
4	14+97.7 MH #6	COP P1560	420-1

5 CONSTRUCT 2' X 2' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 (SEE DWG ST1). 1 EA

INSTALL NEW PREFABRICATED FITTING

NO.	STATION	SIZE
6	14+80	90" X 90" X 18" TANGENTIAL TEE

7 SALVAGE AND RELOCATE CACTUS (NPI)

8 CAP - 2" GALVANIZED WATER LINE (NPI)

9 PIPE SUPPORT PER MAG STD DET 403-3 23 LF

10 RELOCATE 8" WATER LINE PER MAG STD DET 370 22 LF

11 SALVAGE AND RELOCATE SAGUARO 14 LF

12 HYDROSEED LIMITS TYPE B 0.31 AC

1 PROTECT IN PLACE VEGETATION (NPI)

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5

INDICATES POTHOLE LOCATION

INDICATES POTHOLE ELEVATION

NO.	REVISION	BY	DATE
3			
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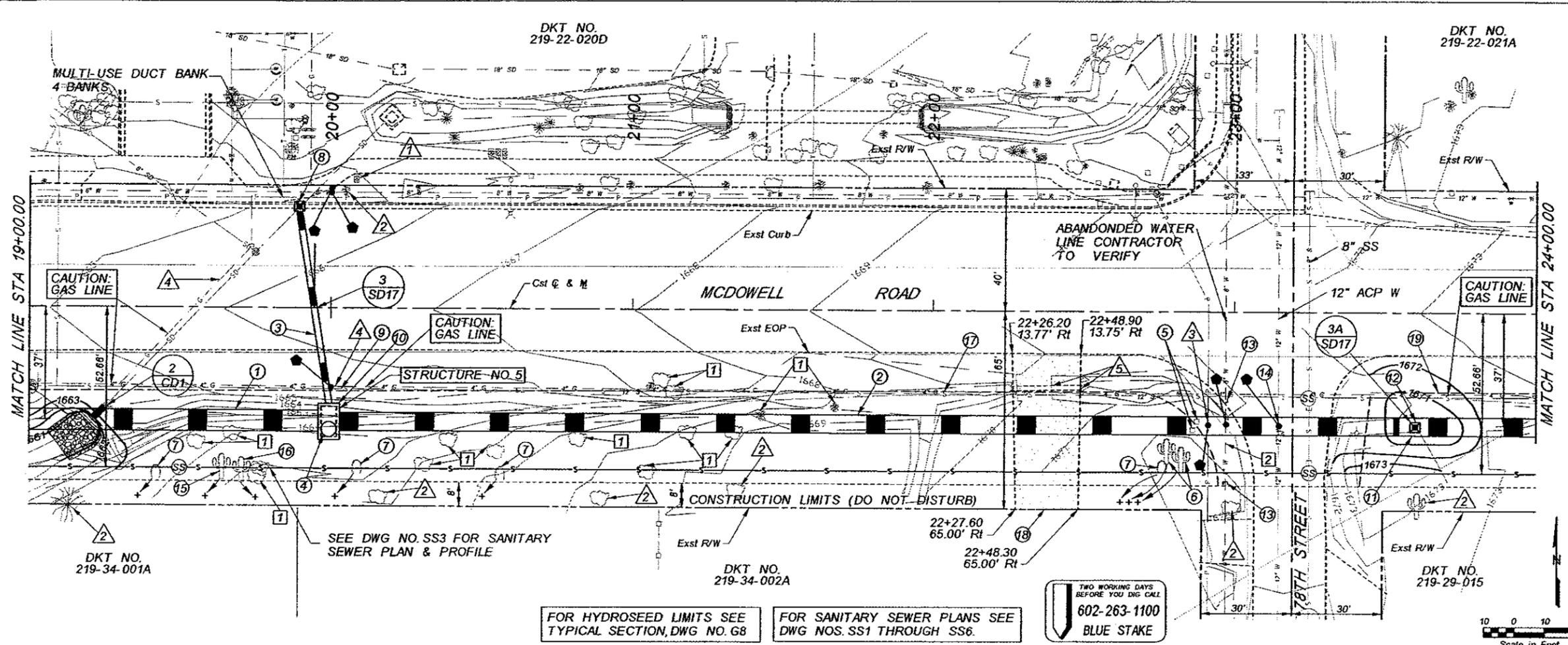
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION

MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31

DESIGNED	DEJ	BY	DATE
24767 ROBERT A EICHINGER	DKS		10/27/06
	RAE		10/27/06

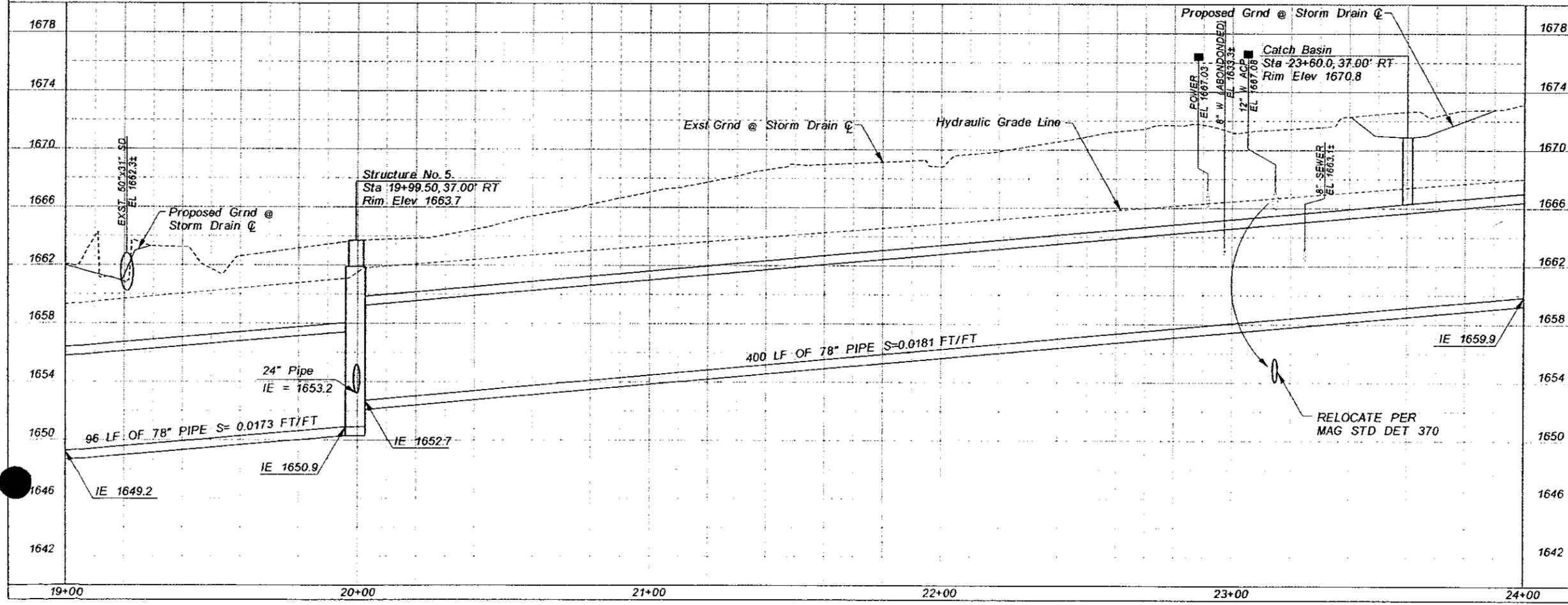
Kimley-Horn and Associates, Inc.

DRAWING NO.	PLAN AND PROFILE SHEET	SHEET OF
SD4	STA 14+00 TO STA 19+00	16 73

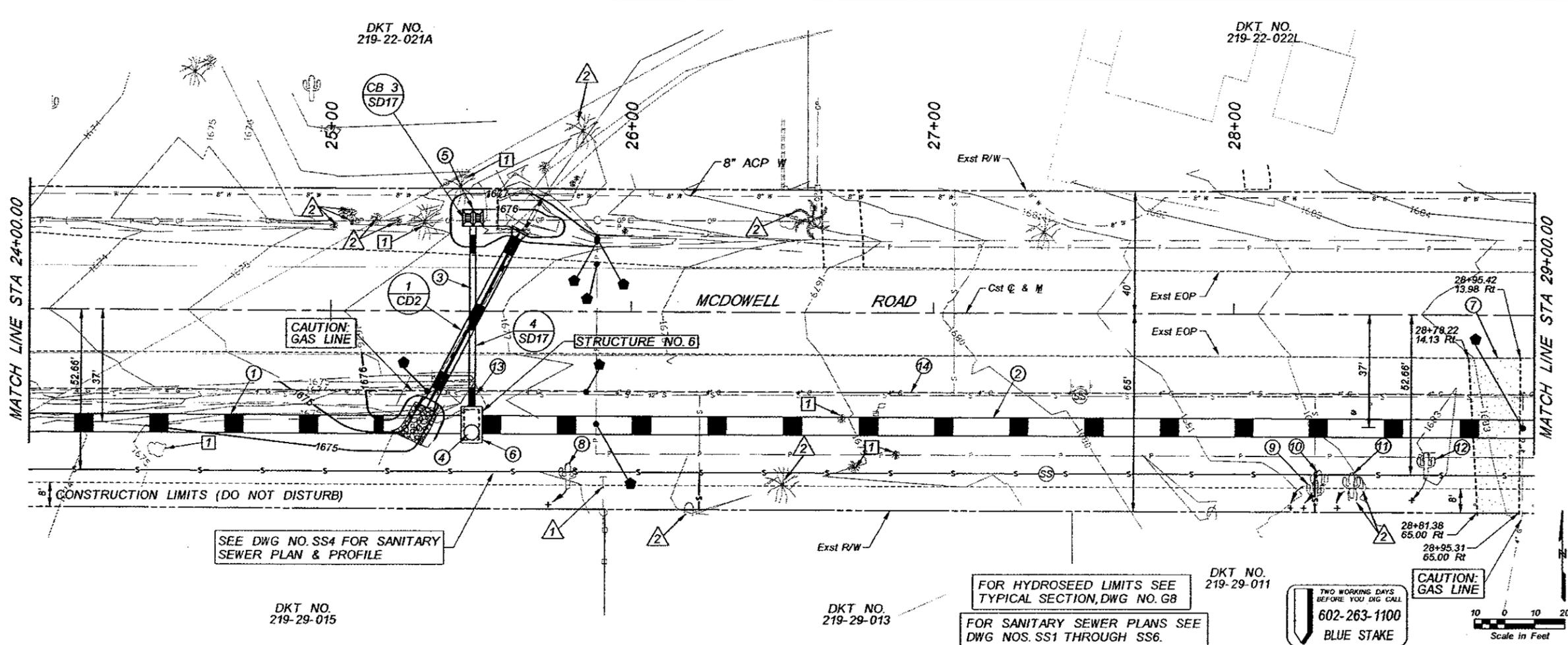


<input type="checkbox"/> REMOVE <input type="checkbox"/>			
<input type="checkbox"/> 1 REMOVE EXISTING VEGETATION (NPI)			
<input type="checkbox"/> 2 REMOVE 8" WATERLINE (NPI)			
<input type="checkbox"/> CONSTRUCT <input type="checkbox"/>			
<b>INSTALL NEW STORM DRAIN PIPE</b>			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	19+00 - 19+99.5 CLASS III	78	96
2	19+99.5 - 24+00 CLASS III	78	400
3	19+94.5 (32' RT - 43' LT) CLASS III	24	64
<b>INSTALL NEW 5' DIA STORM DRAIN MANHOLE</b>			
NO.	STATION	BASE DETAIL	SHAFT DETAIL
4	19+99.5	STRUCTURE NO 5	420-2
<b>INSTALL NEW PREFABRICATED FITTING</b>			
NO.	STATION	SIZE	
11	22+69.31	78"X78"X18" TEE	
<input type="checkbox"/> 5 REPLACE IN-KIND (ELEC PULL BOX AND 3" CONDUIT) (NPI)			
<input type="checkbox"/> 6 SALVAGE AND RELOCATE SAGUARO 35 LF			
<input type="checkbox"/> 7 RELOCATE CACTUS (NPI)			
<input type="checkbox"/> 8 CONSTRUCT CONCRETE CATCH BASIN PER STD DET 531. CONNECT TO EXISTING 24" DIAMETER STORM DRAIN 1 EA			
<input type="checkbox"/> 9 PIPE SUPPORT PER MAG STD DTL 403-3 10 LF			
<input type="checkbox"/> 10 CONSTRUCT STRUCTURE NO. 5 SEE DETAIL ST6 1 EA			
<input type="checkbox"/> 12 CONSTRUCT 2'X2' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 SEE DWG ST1 1 EA			
<input type="checkbox"/> 13 CAP 8" WATERLINE (NPI) 2 EA			
<input type="checkbox"/> 14 RELOCATE 12" WATER LINE PER MAG 370 26 LF			
<input type="checkbox"/> 15 SALVAGE AND RELOCATE SAGUARO 10 LF			
<input type="checkbox"/> 16 SALVAGE AND RELOCATE SAGUARO 12 LF			
<input type="checkbox"/> 17 HYDROSEED LIMITS TYPE B 0.27 AC			
<input type="checkbox"/> 18 RESURFACE DRIVEWAY WITH 4" AB 124 SY			
<input type="checkbox"/> 19 HYDROSEED LIMITS TYPE B 0.04 AC			
<input type="checkbox"/> 1 PROTECT IN PLACE (IRRIGATION VALVE) (NPI)			
<input type="checkbox"/> 2 PROTECT IN PLACE VEGETATION (NPI)			
<input type="checkbox"/> 3 PROTECT IN PLACE (POWER LINE) (NPI)			
<input type="checkbox"/> 4 PROTECT IN PLACE (GAS) (NPI)			
<input type="checkbox"/> 5 PROTECT IN PLACE (CULVERT AND HEADWALLS) (NPI)			
PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5			
<input type="checkbox"/> INDICATES POT HOLE LOCATION			
<input type="checkbox"/> INDICATES POT HOLE ELEVATION			

FOR HYDROSEED LIMITS SEE TYPICAL SECTION, DWG NO. G8  
 FOR SANITARY SEWER PLANS SEE DWG NOS. SS1 THROUGH SS6  
 TWO WORKING DAYS BEFORE YOU DIG CALL 602-263-1100 BLUE STAKE



NO.	REVISION	BY	DATE
3			
2			
1			
<b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</b>			
		DESIGNED: DEJ DRAWN: DKS CHECKED: RAE	BY: [Signature] DATE: 10/27/06
DRAWING NO. SD5		PLAN AND PROFILE SHEET STA 19+00 TO STA 24+00	SHEET OF 17 73



- REMOVE
- ① REMOVE EXISTING VEGETATION (NPI)
- CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	24+00 - 25+48.5 CLASS III	78	144
②	25+48.5 - 29+00 CLASS III	78	350
③	25+48 (37' RT - 27' LT) CLASS III	24	61

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
④	25+47.0	STRUCTURE NO 6	420-2

- ⑤ CONSTRUCT 2' X 4' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 SEE DWG ST1 1 EA
- ⑥ CONSTRUCT STRUCTURE NO. 6 SEE DETAIL ST6 1 EA
- ⑦ RESURFACE DRIVEWAY WITH 4" AB 88 SY
- ⑧ SALVAGE AND RELOCATE SAGUARO 10 LF
- ⑨ SALVAGE AND RELOCATE SAGUARO 40 LF
- ⑩ SALVAGE AND RELOCATE SAGUARO 6 LF
- ⑪ SALVAGE AND RELOCATE SAGUARO 9 LF
- ⑫ SALVAGE AND RELOCATE SAGUARO 15 LF
- ⑬ PIPE SUPPORT PER MAG STD DTL 403-3 26 LF
- ⑭ HYDROSEED LIMITS TYPE B 0.36 AC

- ⚠ PROTECT IN PLACE (DOWN GUY) (NPI)
- ⚠ PROTECT IN PLACE VEGETATION (NPI)
- PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5
- INDICATES POT HOLE LOCATION
- INDICATES POT HOLE ELEVATION

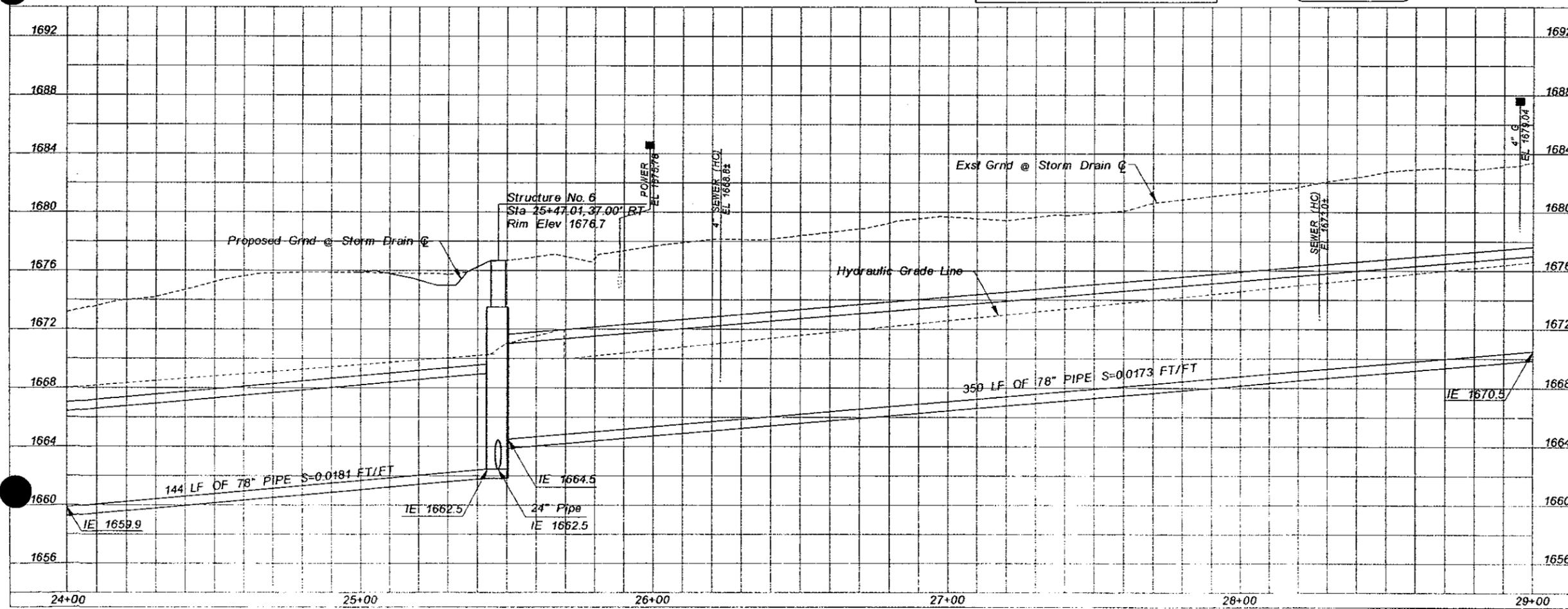
NO.	REVISION	BY	DATE
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**  
ENGINEERING DIVISION

MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
PCN 420.03.31

DESIGNED	DEJ	DATE
24787 ROBERT A EICHINGER	DKS	10/27/06
CHECKED	RAE	10/27/06

Kimley-Horn and Associates, Inc.

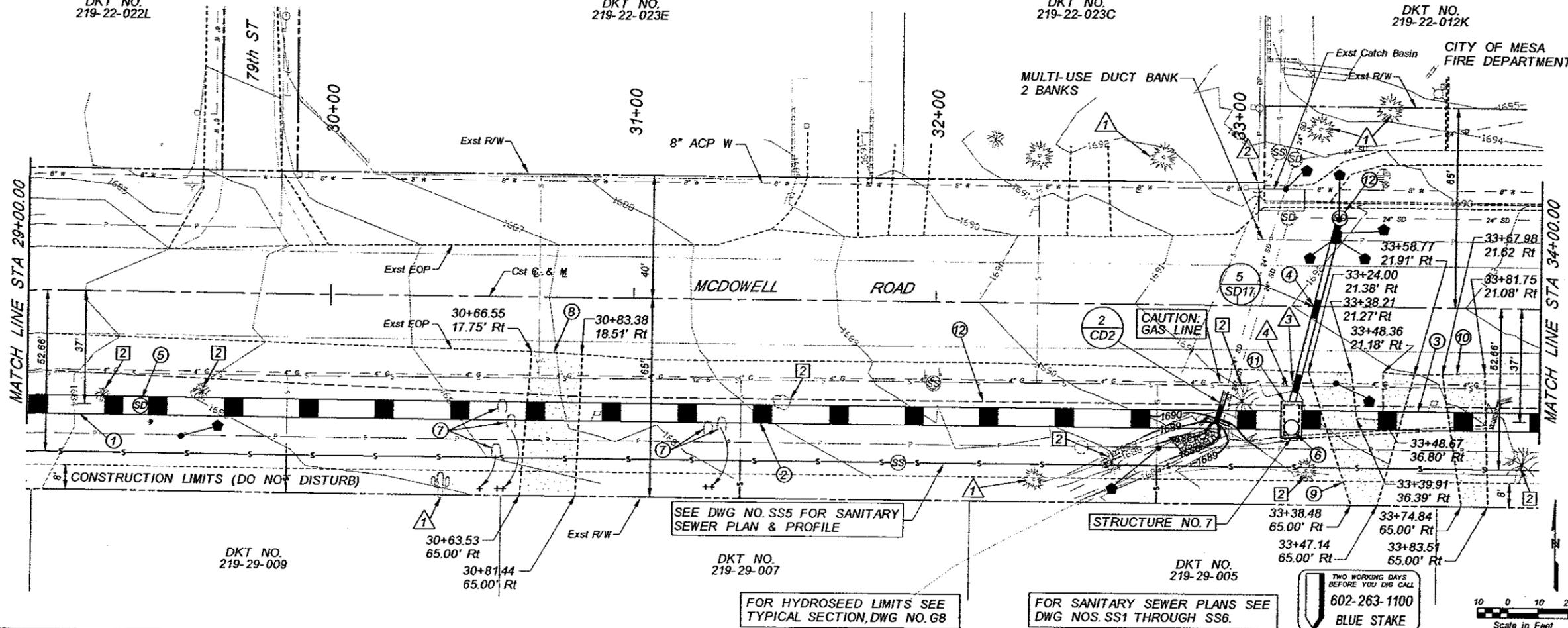


DKT NO. 219-22-022L

DKT NO. 219-22-023E

DKT NO. 219-22-023C

DKT NO. 219-22-012K



- REMOVE
- ① NOT USED
- ② REMOVE EXISTING VEGETATION (NPI)
- CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	29+00 - 29+37.5 CLASS III	78	38
②	29+37.5 - 33+18.5 CLASS III	78	380
③	33+18.5 - 34+00 CLASS III	78	80
④	33+26 (37' RT - 29' LT) CLASS III	24	63

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
⑤	29+37.5 MH #7	521	420-1
⑥	33+18.5	STRUCTURE NO 7	420-2
⑫	33+32.9 MH #11	520	420-2

- ⑦ RELOCATE CACTUS (NPI)
- ⑧ RESURFACE DRIVEWAY WITH 4" AB 90 SY
- ⑨ RESURFACE DRIVEWAY WITH 4" AB 89 SY
- ⑩ RESURFACE DRIVEWAY WITH 4" AB 55 SY
- ⑪ CONSTRUCT STRUCTURE NO. 7 SEE DETAIL ST6 1 EA
- ⑫ HYDROSEED LIMITS TYPE B 0.30 AC

- ① PROTECT IN PLACE VEGETATION (NPI)
  - ② PROTECT IN PLACE (DOWN GUY) (NPI)
  - ③ PROTECT IN PLACE (4" GAS) (NPI)
  - ④ PROTECT IN PLACE (12" SEWER) (NPI)
- PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5
- INDICATES POT HOLE LOCATION
  - INDICATES POT HOLE ELEVATION

NO.	REVISION	BY	DATE
3			
2			
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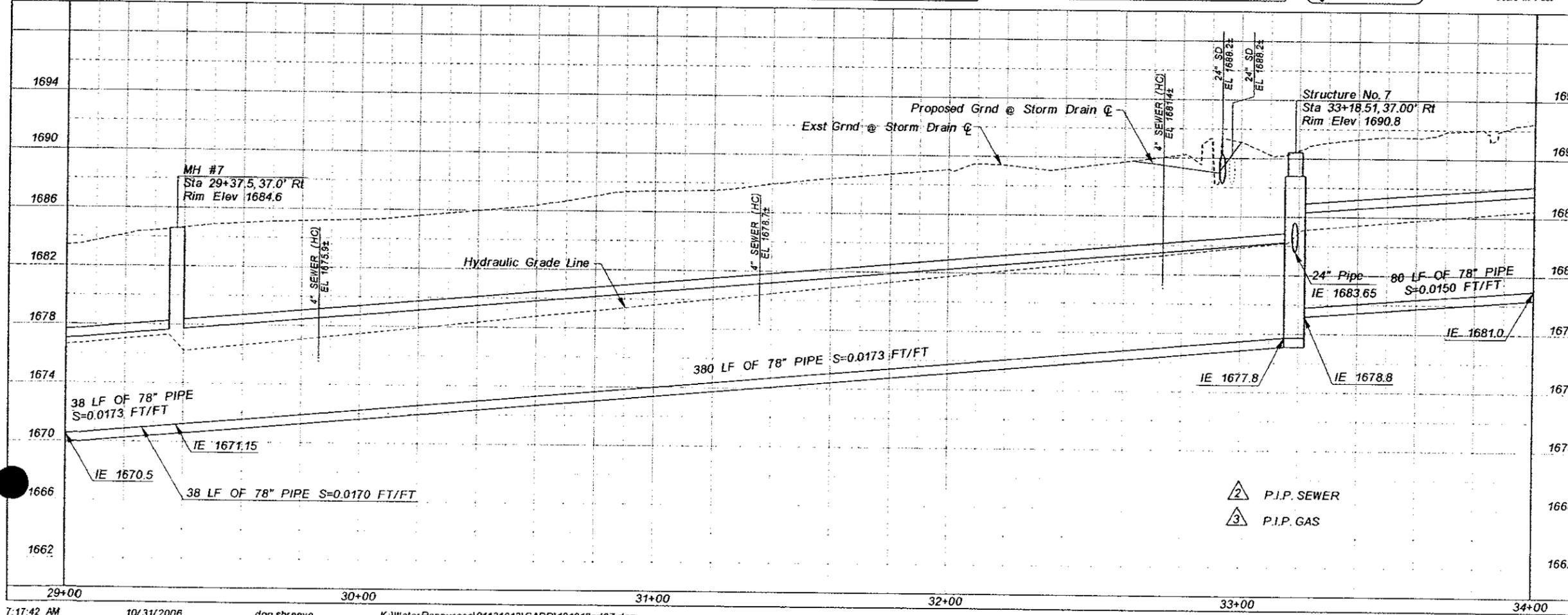
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

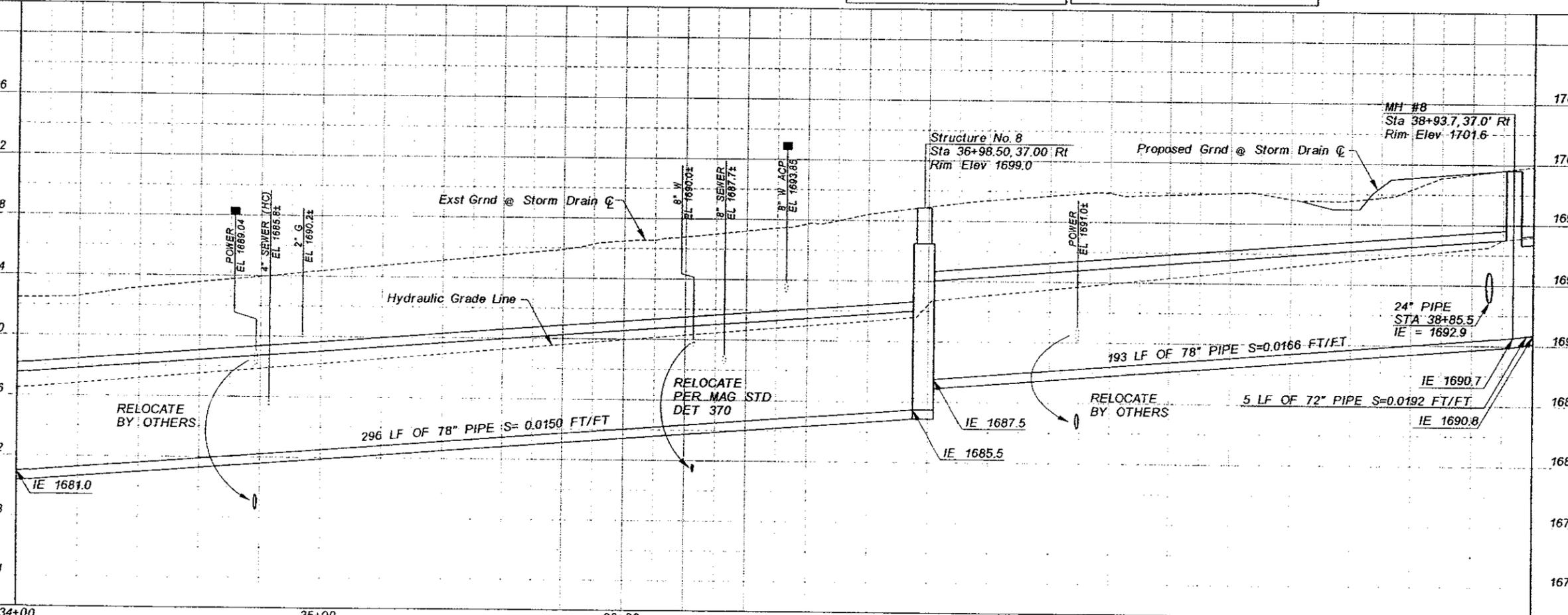
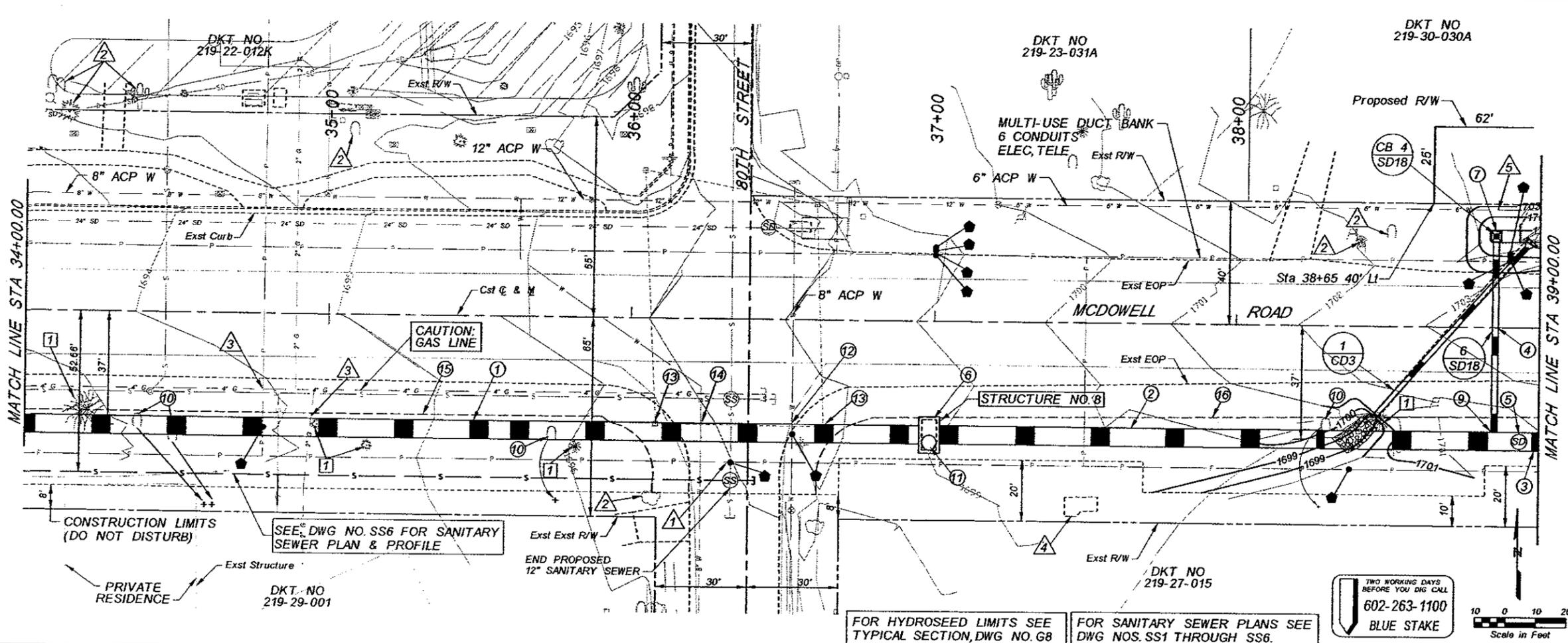
**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	BY	DATE
DEJ		10/27/06
DRAWN	BY	DATE
DKS		10/27/06
CHECKED	BY	DATE
RAE		10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO. SD7 PLAN AND PROFILE SHEET STA 29+00 TO STA 34+00 SHEET OF 19 73





REMOVE

1 REMOVE EXISTING VEGETATION (NPI)

CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	34+00 - 36+98.5 CLASS III	78	296
2	36+98.5 - 38+93.7 CLASS III	78	193
3	38+87.5 - 39+00 CLASS III	72	5
4	38+86.5 (37' RT - 32' LT) CLASS III	18	62

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
5	38+93.7 MH #8	COP P1560	420-2
11	36+98.5	STRUCTURE NO 8	420-2

6 CONSTRUCT STRUCTURE NO. 8 SEE DETAIL ST6 1 EA

7 CONSTRUCT 2' X 2' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537, SEE DWG ST1 1 EA

INSTALL NEW PREFABRICATED FITTING

NO.	STATION	SIZE
9	38+85.5	78" X 78" X 24" TEE

10 RELOCATE CACTUS (NPI)

12 REMOVE 8" ACP WATER LINE AND REPLACE WITH 8" DIP PER MAG STD DET 403-3. SEE SPECIFICATIONS FOR COORDINATING WATERLINE CONSTRUCTION WITH CITY OF MESA 19 LF

13 REPLACE IN-KIND (ELEC PULLBOX AND 3" CONDUIT) (NPI)

14 RELOCATE 8" W PER MAG STD DET 370 19 LF

15 HYDROSEED LIMITS TYPE B 0.12 AC

16 HYDROSEED LIMITS TYPE B 0.10 AC

1 PROTECT IN PLACE (POWER LINE) (NPI)

2 PROTECT IN PLACE VEGETATION (NPI)

3 PROTECT IN PLACE (GAS) (NPI)

4 PROTECT IN PLACE (NPI)

5 PROTECT IN PLACE (6" WATER) (NPI)

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5

● INDICATES POTHOLE LOCATION

■ INDICATES POTHOLE ELEVATION

NO.	REVISION	BY	DATE
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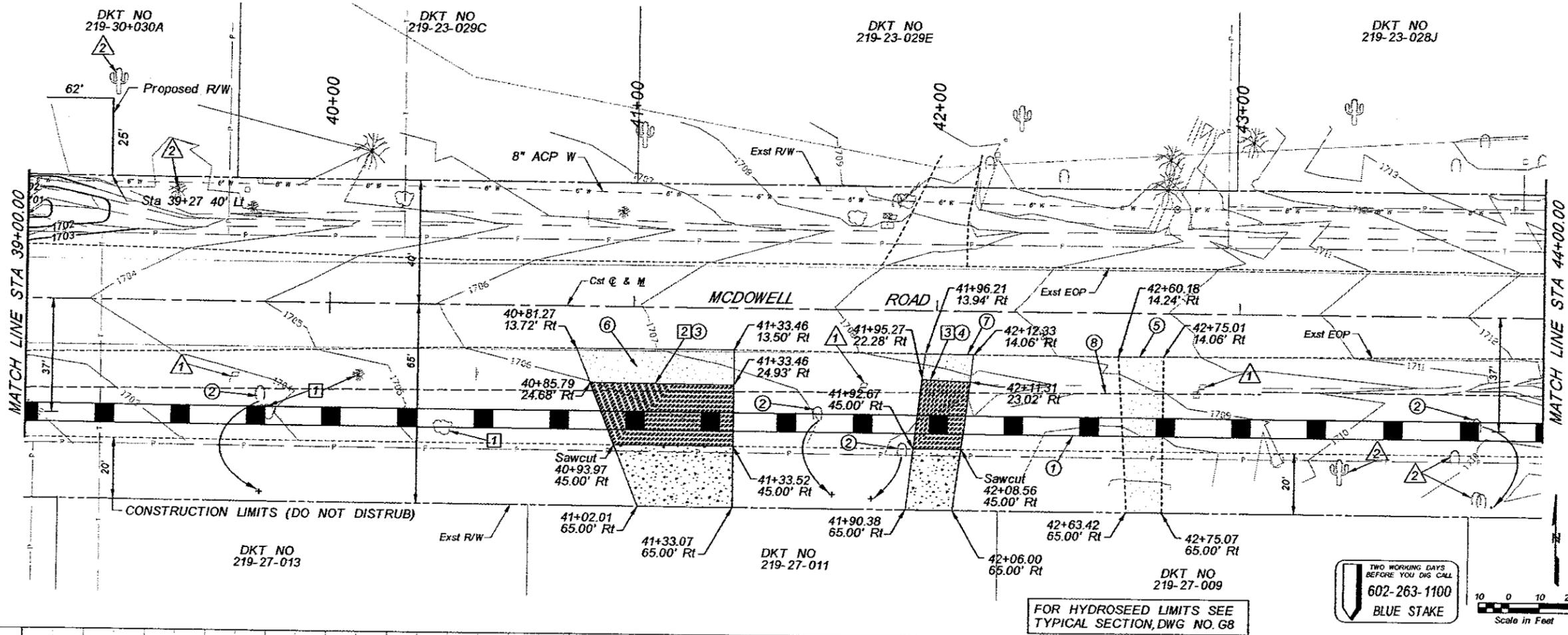
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	DEJ	DATE
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO. SD8 PLAN AND PROFILE SHEET STA 34+00 TO STA 39+00 SHEET OF 20 73



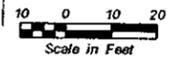
- REMOVE
- ① REMOVE EXISTING VEGETATION (NPI)
- ② REMOVE EXISTING DRIVEWAY 98 SY
- ③ REMOVE EXISTING DRIVEWAY 40 SY

○ CONSTRUCT ○  
INSTALL NEW STORM DRAIN PIPE

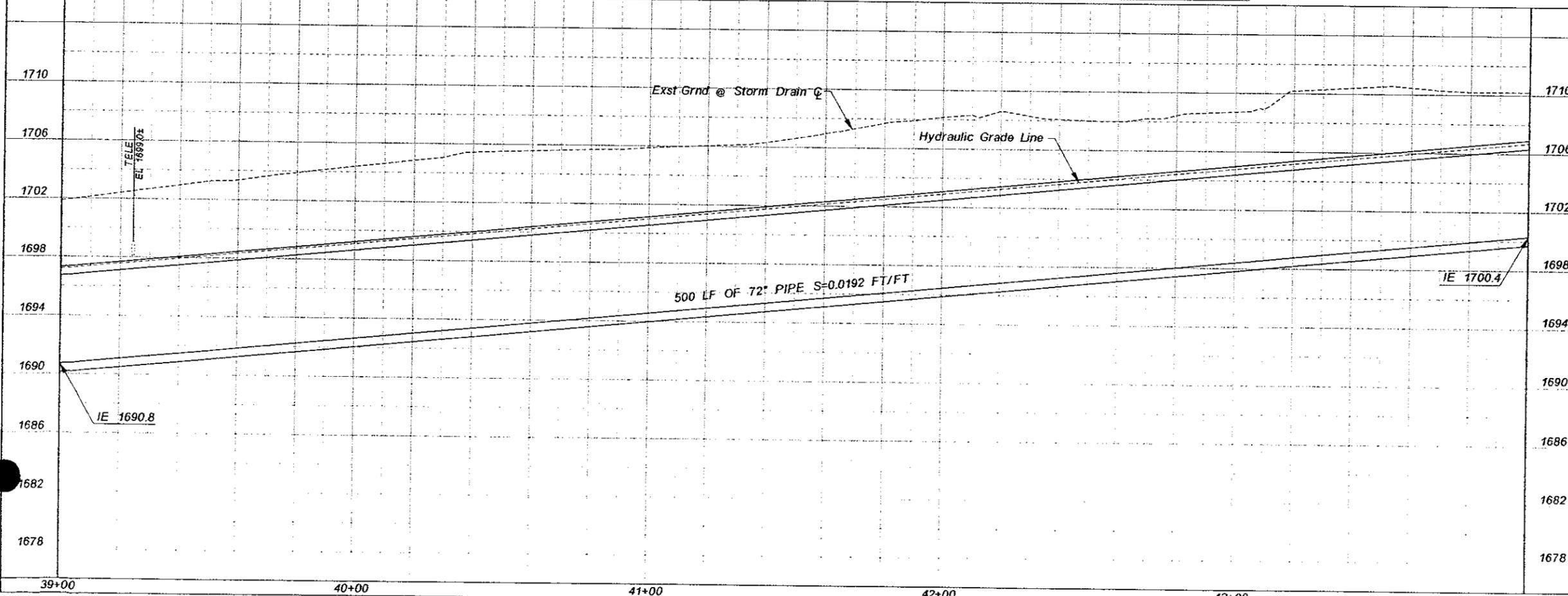
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	39+00 - 44+00 CLASS III	72	500

- ② RELOCATE CACTUS (NPI)
- ③ CONSTRUCT CONCRETE DRIVEWAY PER MAG STD DTL 230 98 SY
- ④ CONSTRUCT CONCRETE DRIVEWAY PER MAG STD DTL 230 40 SY
- ⑤ RESURFACE DRIVEWAY WITH 4" AB 75 SY
- ⑥ FROM EOP TO NEW CONC DRIVEWAY, PAVE WITH AB 62 SY
- ⑦ FROM EOP TO NEW CONC DRIVEWAY, PAVE WITH AB 16 SY
- ⑧ HYDROSEED LIMITS TYPE B 0.21 AC

TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



FOR HYDROSEED LIMITS SEE TYPICAL SECTION, DWG NO. G8



- △ PROTECT IN PLACE (MAILBOX) (NPI)
- △ PROTECT IN PLACE VEGETATION (NPI)
- PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5
- INDICATES POT HOLE LOCATION
- INDICATES POT HOLE ELEVATION

NO.	REVISION	BY	DATE
3			
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**  
MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
PCN 420.03.31

DESIGNED	DEJ	BY	DATE
DRAWN	DKS <td></td> <td>10/27/06</td>		10/27/06
CHECKED	RAE <td></td> <td>10/27/06</td>		10/27/06

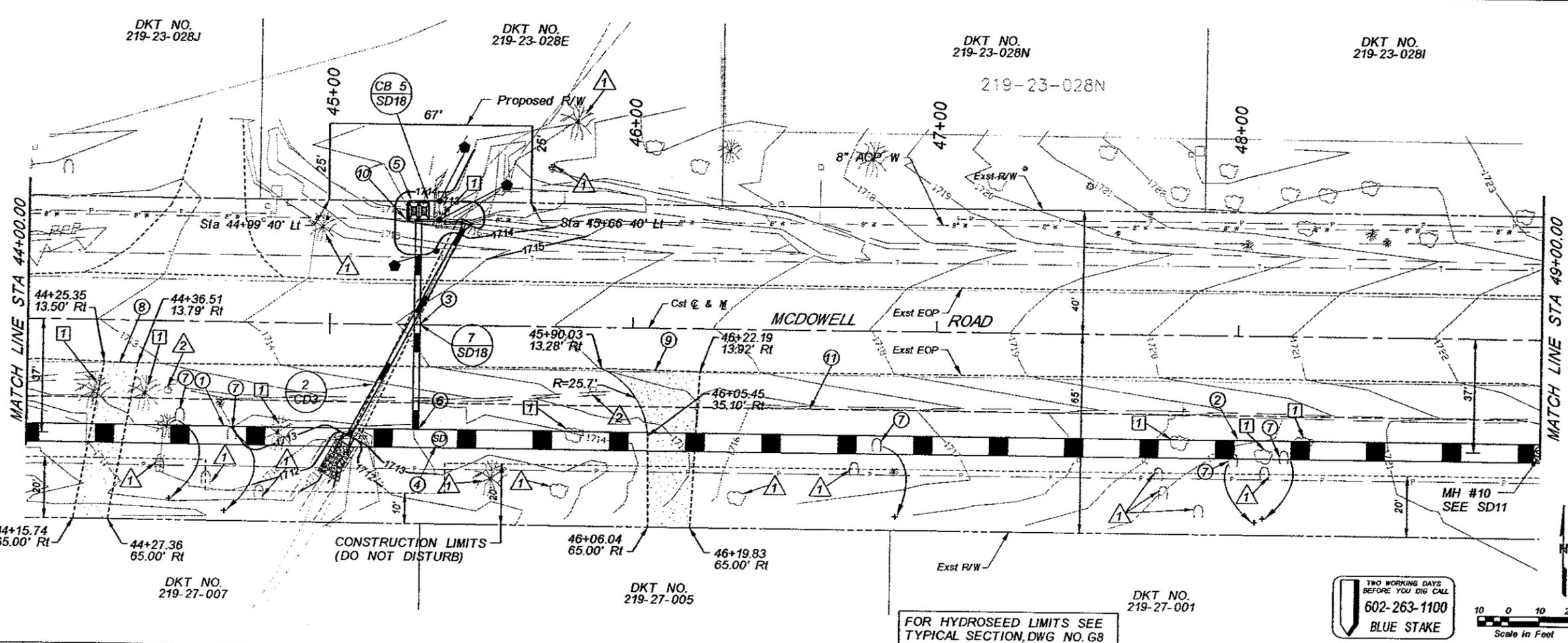
DRAWING NO. SDS  
PLAN AND PROFILE SHEET STA 39+00 TO STA 44+00  
SHEET OF 21 73

DKT NO.  
219-23-028J

DKT NO.  
219-23-028E

DKT NO.  
219-23-028N

DKT NO.  
219-23-028I

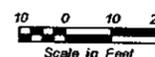


DKT NO.  
219-27-007

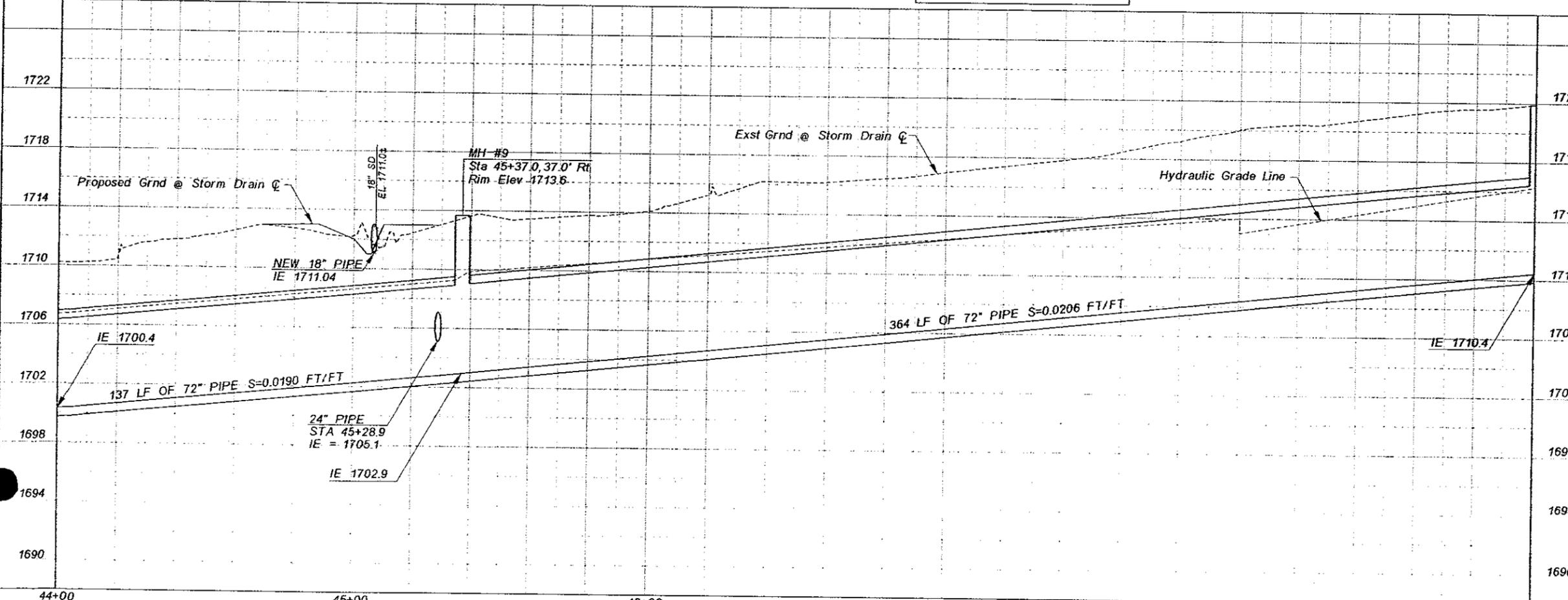
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DKT NO.  
219-27-001

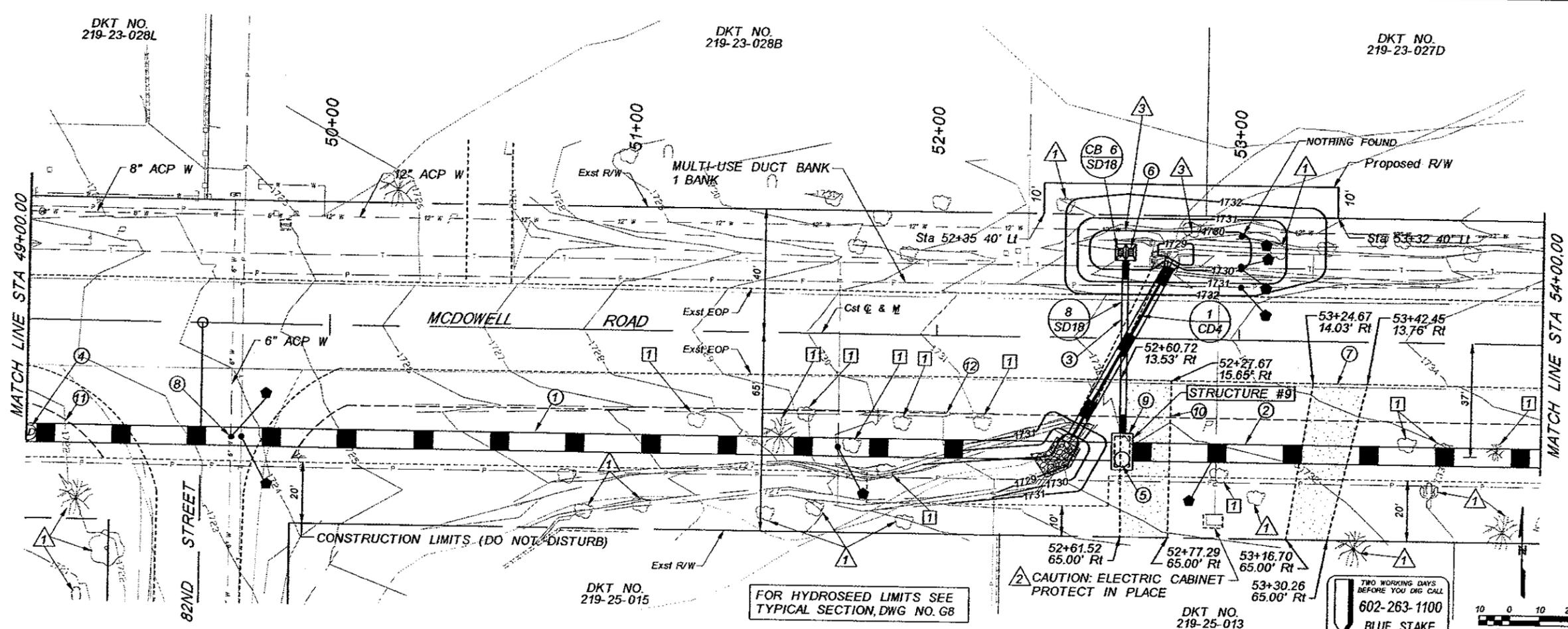
FOR HYDROSEED LIMITS SEE  
TYPICAL SECTION, DWG NO. G8



REMOVE			
1 REMOVE EXISTING VEGETATION (NPI)			
CONSTRUCT			
INSTALL NEW STORM DRAIN PIPE			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	44+00 - 45+37.0 CLASS III	72	137
2	45+32.5 - 49+00.6 CLASS III	72	364
3	45+28.9 (37' RT - 37' LT) CLASS III	24	68
INSTALL NEW 5' DIA STORM DRAIN MANHOLE			
NO.	STATION	BASE DETAIL	SHAFT DETAIL
4	45+37 MH #9	521	420-2
5 CONSTRUCT 2' X 4' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 SEE DWG ST1 1 EA			
INSTALL NEW PREFABRICATED FITTING			
NO.	STATION	SIZE	
6	45+29	72" X 72" X 24" TEE	
7 RELOCATE CACTUS (NPI)			
8 RESURFACE DRIVEWAY WITH 4" AB 65 SY			
9 RESURFACE DRIVEWAY WITH 4" AB 98 SY			
10 RELOCATE 8" ACP WATER LINE PER MAG DETAIL 370 26 LF			
11 HYDROSEED LIMITS TYPE B 0.24 AC			
1 PROTECT IN PLACE VEGETATION (NPI)			
2 PROTECT IN PLACE MAILBOX (NPI)			
PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5			
● INDICATES POTHOLE LOCATION			
■ INDICATES POTHOLE ELEVATION			
3			
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NO.	REVISION	BY	DATE



<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</p>		
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06
DRAWING NO.	PLAN AND PROFILE SHEET	SHEET OF
SD10	STA 44+00 TO STA 49+00	22 73



- REMOVE
- 1** REMOVE EXISTING VEGETATION (NPI)
- CONSTRUCT
- INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	49+00.6 - 52+61.72 CLASS III	72	362
2	52+61.72 - 54+00 CLASS III	72	138
3	52+59 (37' RT - 26' LT) CLASS III	24	57

NO.	STATION	BASE DETAIL	SHAFT DETAIL
4	49+00.6 MH #10	521	420-1
5	52+61.7	STRUCTURE NO 9	420-2

- 6** CONSTRUCT 2' X 4' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 1 EA SEE DWG ST1
- 7** RESURFACE DRIVEWAY WITH 4" AB 90 SY
- 8** REMOVE 6" ACP WATER LINE AND REPLACE WITH 6" DIP PER MAG STD DET 403-3. SEE SPECIFICATIONS FOR COORDINATING WATERLINE CONSTRUCTION WITH CITY OF MESA 16 LF
- 9** CONSTRUCT STRUCTURE NO. 9 SEE DETAIL ST6 1 EA
- 10** RESURFACE DRIVEWAY WITH 4" ABC 94 SY
- 11** HYDROSEED LIMITS TYPE B 0.01 AC
- 12** HYDROSEED LIMITS TYPE B 0.20 AC

- 1** PROTECT IN PLACE VEGETATION (NPI)
- 2** PROTECT IN PLACE (ELEC CABINET) (NPI)
- 3** PROTECT IN PLACE (WATER LINE) (NPI)
- PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5
- INDICATES POT HOLE LOCATION
- INDICATES POT HOLE ELEVATION

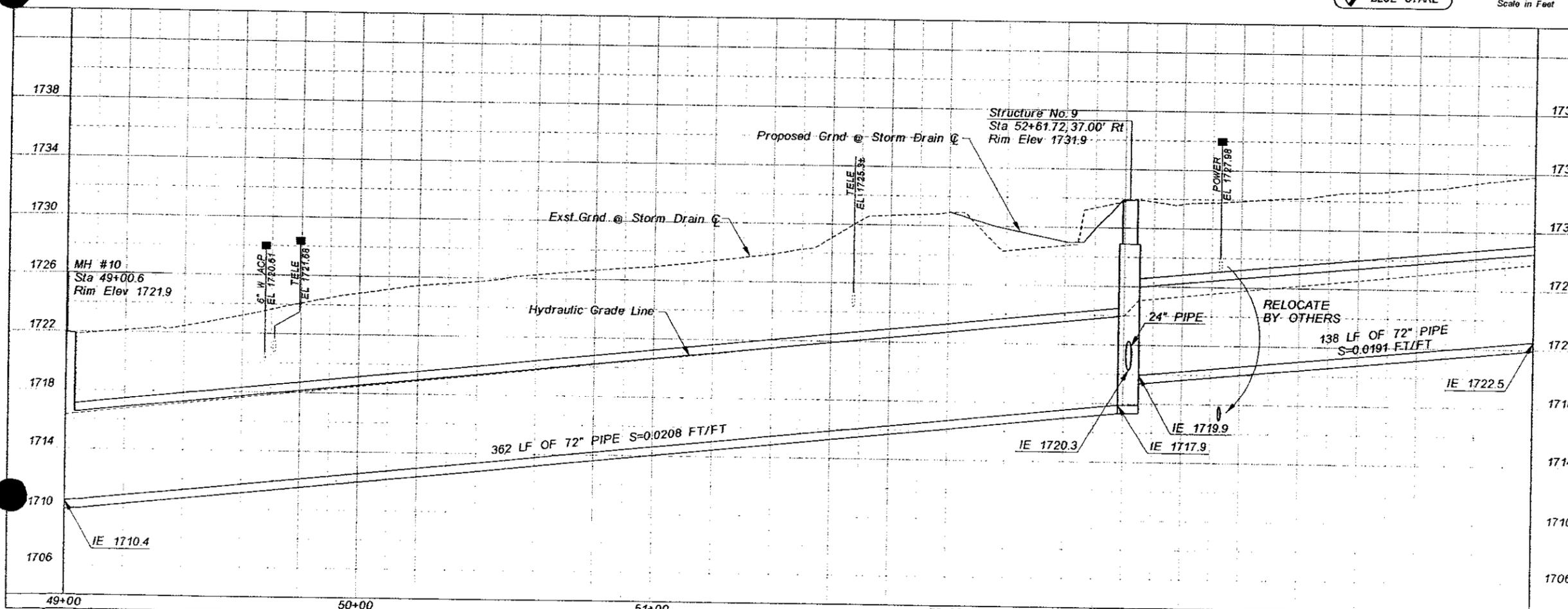
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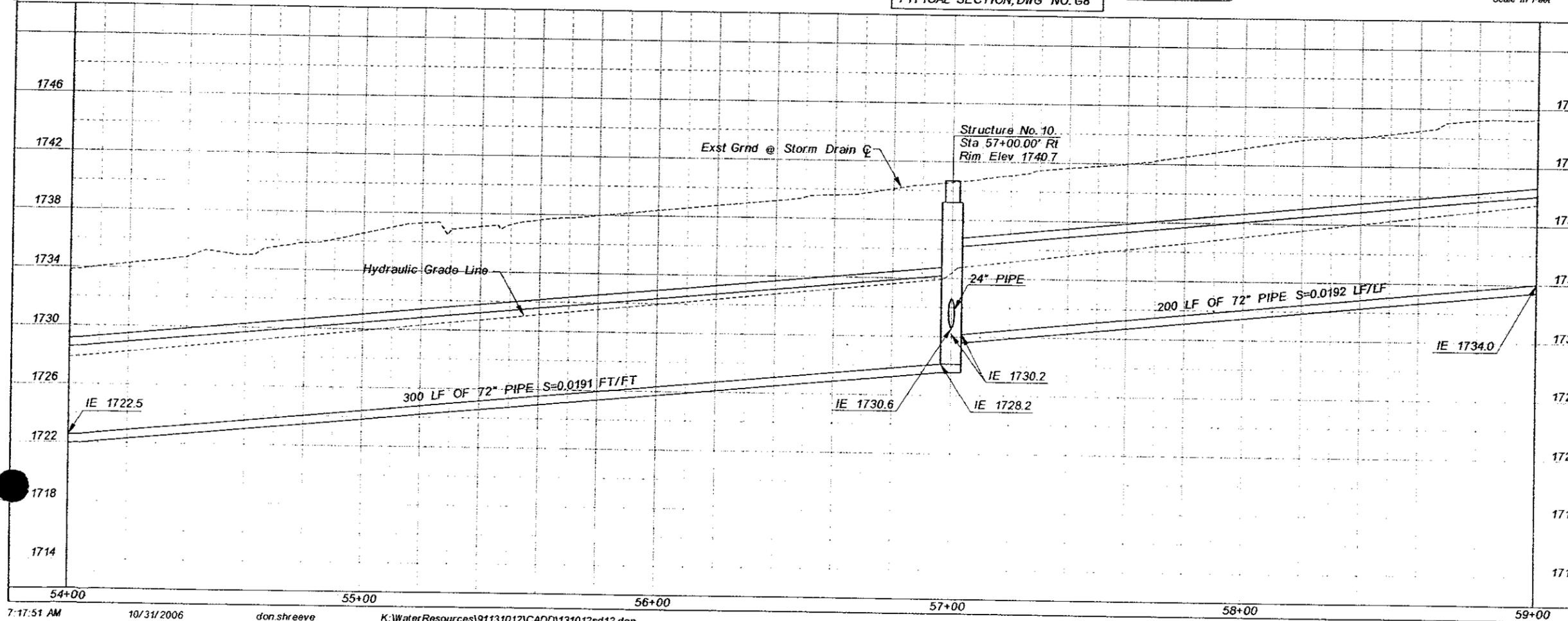
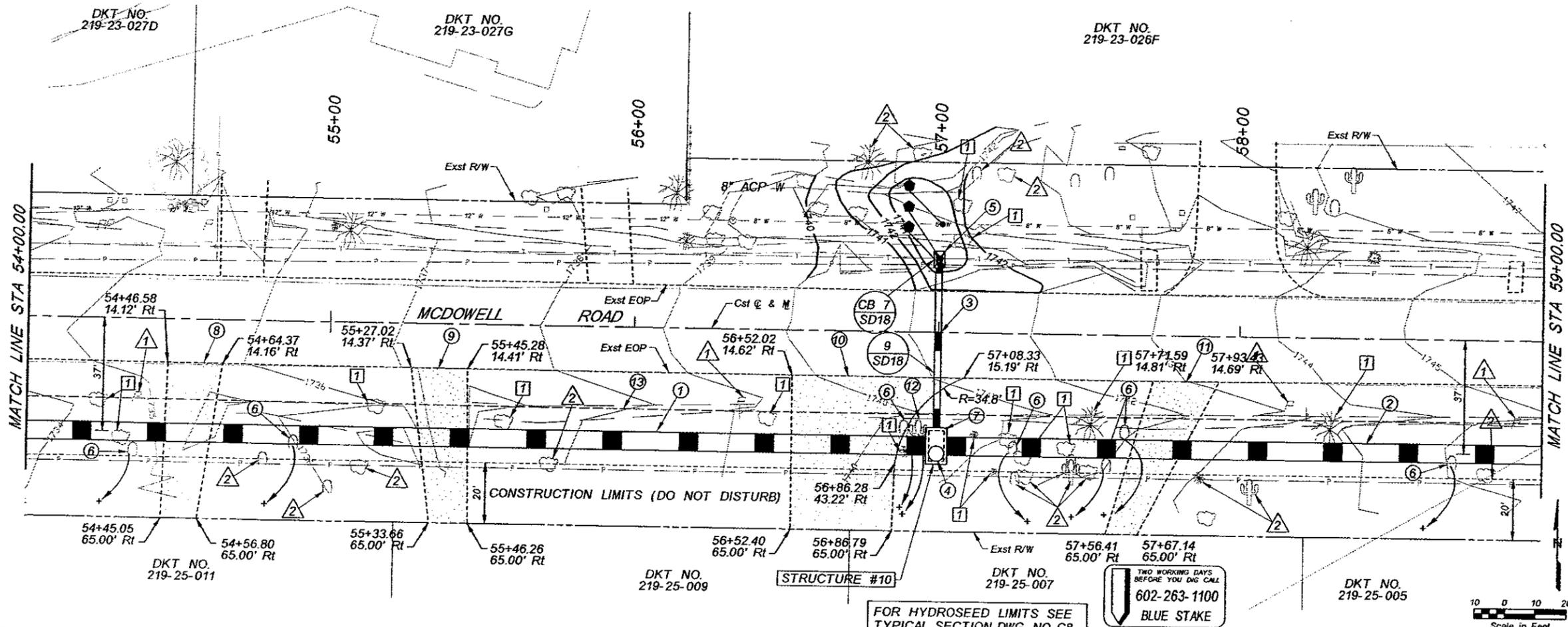
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	BY	DATE
DEJ	DEJ	10/27/06
DRAWN	BY	DATE
DKS	DKS	10/27/06
CHECKED	BY	DATE
RAE	RAE	10/27/06

Kimley-Horn and Associates, Inc.





REMOVE

1 REMOVE EXISTING VEGETATION (NPI)

CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	54+00 - 57+00 CLASS III	72	300
2	57+00 - 59+00 CLASS III	72	200
3	57+01 (37' RT - 24' LT) CLASS III	24	55

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL
4	56+99.8	STRUCTURE # 10	420-2

5 CONSTRUCT 2' X 2' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537 SEE DWG ST1 1 EA

6 RELOCATE CACTUS (NPI)

7 CONSTRUCT STRUCTURE NO. 10 SEE DETAIL ST6 1 EA

8 RESURFACE DRIVEWAY WITH 4" AB 83 SY

9 RESURFACE DRIVEWAY WITH 4" AB 87 SY

10 RESURFACE DRIVEWAY WITH 4" AB 213 SY

11 RESURFACE DRIVEWAY WITH 4" AB 91 SY

12 SALVAGE AND RELOCATE SAGUARO 25 LF

13 HYDROSEED LIMITS TYPE B 0.21 AC

▲ PROTECT IN PLACE (NPI)

▲ PROTECT IN PLACE VEGETATION (NPI)

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5

◆ INDICATES POTHOLE LOCATION

■ INDICATES POTHOLE ELEVATION

NO.	REVISION	BY	DATE
3			
2			
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	BY	DATE
DEJ		10/27/06
DRAWN	BY	DATE
DKS		10/27/06
CHECKED	BY	DATE
RAE		10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO. SD12 PLAN AND PROFILE SHEET STA 54+00 TO STA 59+00 SHEET OF 24 73

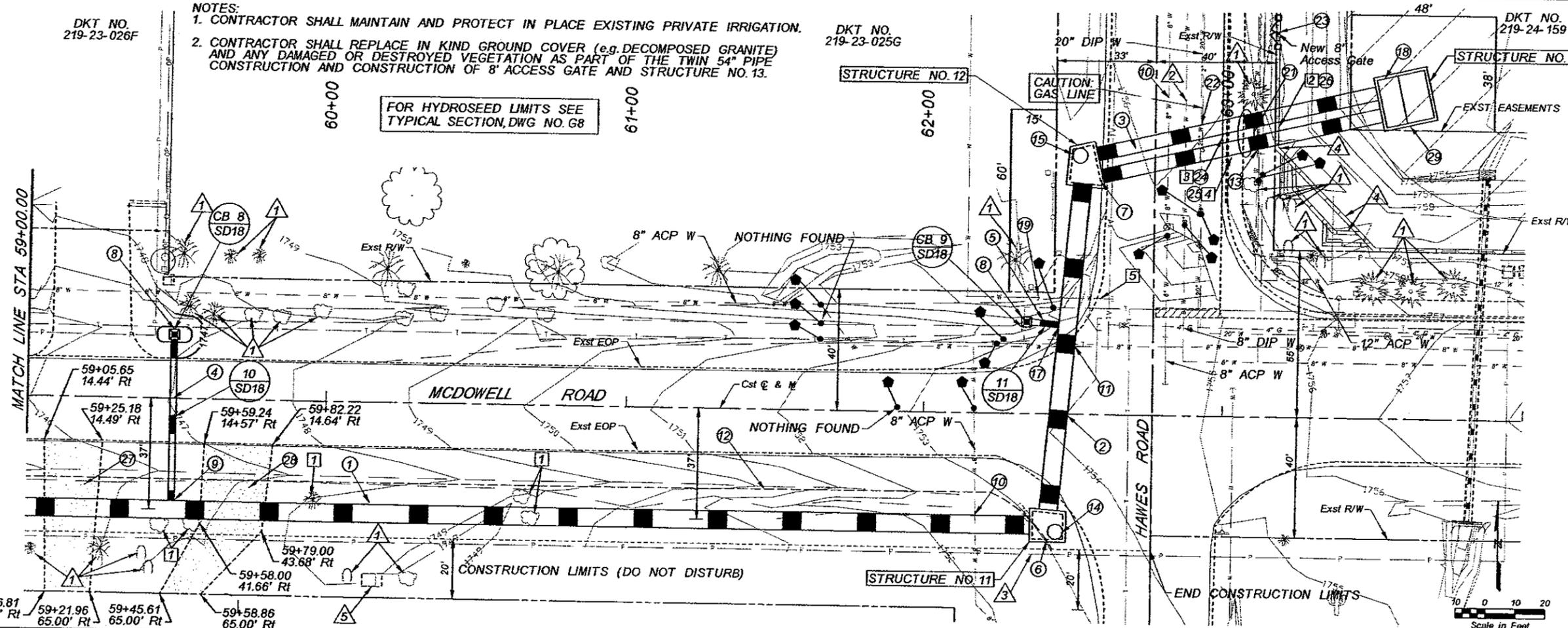
DKT NO.  
219-23-026F

- NOTES:  
 1. CONTRACTOR SHALL MAINTAIN AND PROTECT IN PLACE EXISTING PRIVATE IRRIGATION.  
 2. CONTRACTOR SHALL REPLACE IN KIND GROUND COVER (e.g. DECOMPOSED GRANITE) AND ANY DAMAGED OR DESTROYED VEGETATION AS PART OF THE TWIN 54" PIPE CONSTRUCTION AND CONSTRUCTION OF 8" ACCESS GATE AND STRUCTURE NO. 13.

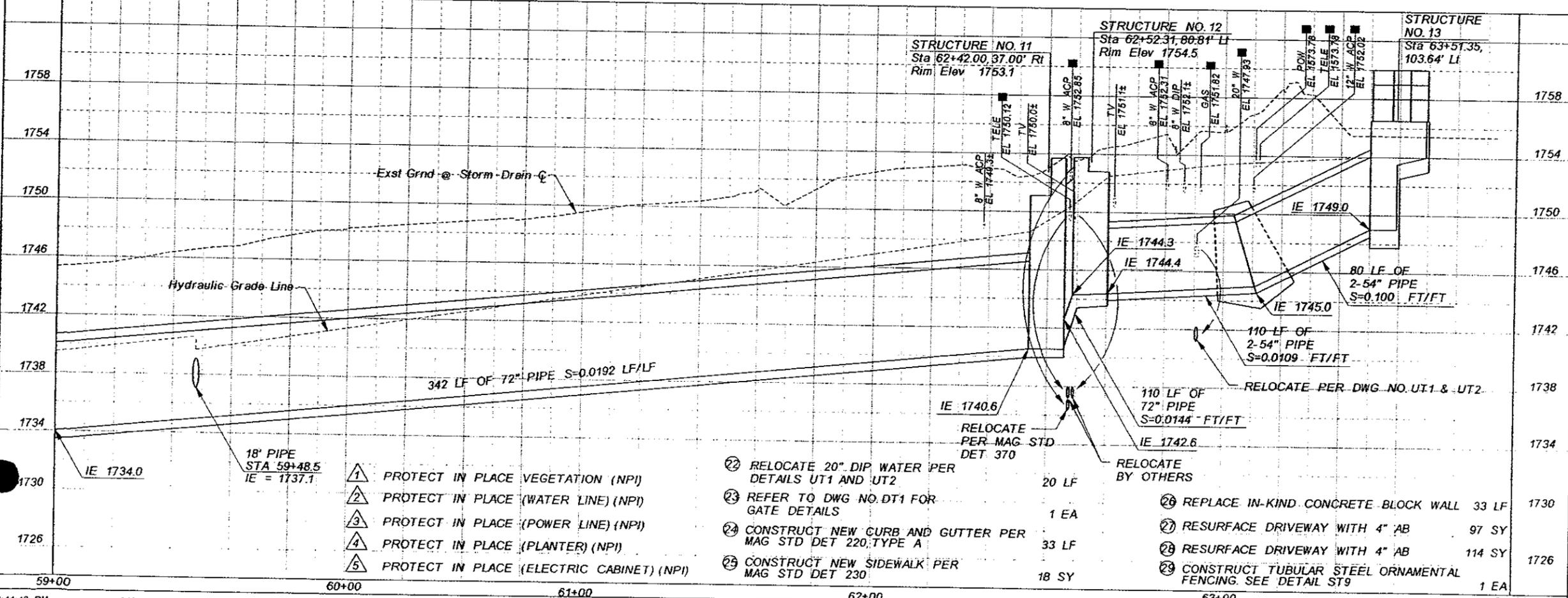
DKT NO.  
219-23-025G

DKT NO.  
219-24-159

FOR HYDROSEED LIMITS SEE  
TYPICAL SECTION, DWG NO. G8



- | <input type="checkbox"/>                            | REMOVE  |                     |              |
|---|---|---------------------|--------------|
| 1   | REMOVE EXISTING VEGETATION (NPI)  |                     |              |
| 2   | REMOVE BLOCK WALL   | 33 LF               |              |
| 3   | REMOVE CURB AND GUTTER  | 33 LF               |              |
| 4   | REMOVE SIDEWALK   | 18 SY               |              |
| 5   | REMOVE 8" WATER LINE (NPI)  |                     |              |
| <input type="checkbox"/>                            | CONSTRUCT   |                     |              |
| INSTALL NEW STORM DRAIN PIPE                        |   |                     |              |
| NO.   | STATION TO STATION  | DIAMETER INCHES     | LENGTH FEET  |
| 1   | 59+00 - 62+39.5   | CLASS III           | 342          |
| 2   | 62+39.5 - 62+54.4   | CLASS V             | 110          |
| 3   | 62+54.4 - 63+55   | CLASS V             | 2 - 54       |
| 4   | 59+48 (37' RT - 22.5 LT)  | CLASS III           | 18           |
| 5   | 62+47.9 - 62+32.3 (30.2' LT)  | CLASS III           | 14           |
| 6   | CONSTRUCT STRUCTURE # 11  | SEE DETAIL ST7      | 1 EA         |
| 7   | CONSTRUCT STRUCTURE # 12  | SEE DETAIL ST8      | 1 EA         |
| 8   | CONSTRUCT 2' X 2' CONCRETE CATCH BASIN PER MODIFIED MAG STD DET 537   | SEE DWG ST1         | 2 EA         |
| INSTALL NEW PREFABRICATED FITTING                   |   |                     |              |
| NO.   | STATION   | SIZE                |              |
| 9   | 59+48.5   | 72" X 72" X 18" TEE |              |
| 17  | 62+47.9   | 72" X 72" X 18" TEE |              |
| 10  | REMOVE 8" ACP WATER LINE AND REPLACE WITH 8" DIP PER MAG STD DET 403-3. SEE SPECIFICATIONS FOR COORDINATING WATER LINE CONSTRUCTION WITH CITY OF MESA   |                     | 58 LF        |
| 11  | RELOCATE 8" W PER MAG STD DET 370   |                     | 26 LF        |
| 12  | HYDROSEED LIMITS TYPE B   |                     | 0.14 AC      |
| 13  | REMOVE 12" ACP WATER LINE AND REPLACE WITH 12" DIP PER MAG STD DET 403-3. SEE SPECIFICATIONS FOR COORDINATING WATER LINE CONSTRUCTION WITH CITY OF MESA |                     | 32 LF        |
| INSTALL NEW 5' DIA STORM DRAIN MANHOLE              |   |                     |              |
| NO.   | STATION   | BASE DETAIL         | SHAFT DETAIL |
| 14  | 62+39.5   | STRUCTURE NO 11     | 420-2        |
| 15  | 62+54.4   | STRUCTURE NO 12     | 420-2        |
| 16  | NOT USED  |                     |              |
| 18  | CONSTRUCT STRUCTURE # 13  | SEE DETAIL ST9      | 1 EA         |
| 19  | CAP 8" ACP WATER LINE (NPI)   |                     |              |
| 20  | NOT USED  |                     |              |
| 21  | INSTALL CONCRETE PIPE COLLAR PER MAG STD DET 505  |                     | 2 EA         |
| PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5 |   |                     |              |
| ◆ INDICATES POT HOLE LOCATION                       |   |                     |              |
| ■ INDICATES POT HOLE ELEVATION                      |   |                     |              |



- |   |   |  |
|---|---|--|
| 1 | PROTECT IN PLACE VEGETATION (NPI)         |  |
| 2 | PROTECT IN PLACE (WATER LINE) (NPI)       |  |
| 3 | PROTECT IN PLACE (POWER LINE) (NPI)       |  |
| 4 | PROTECT IN PLACE (PLANTER) (NPI)          |  |
| 5 | PROTECT IN PLACE (ELECTRIC CABINET) (NPI) |  |

- |    |  |       |
|----|--|-------|
| 22 | RELOCATE 20" DIP WATER PER DETAILS UT1 AND UT2           | 20 LF |
| 23 | REFER TO DWG NO. DT1 FOR GATE DETAILS                    | 1 EA  |
| 24 | CONSTRUCT NEW CURB AND GUTTER PER MAG STD DET 220 TYPE A | 33 LF |
| 25 | CONSTRUCT NEW SIDEWALK PER MAG STD DET 230               | 18 SY |

- |    |  |        |
|----|--|--------|
| 26 | REPLACE IN-KIND CONCRETE BLOCK WALL                        | 33 LF  |
| 27 | RESURFACE DRIVEWAY WITH 4" AB                              | 97 SY  |
| 28 | RESURFACE DRIVEWAY WITH 4" AB                              | 114 SY |
| 29 | CONSTRUCT TUBULAR STEEL ORNAMENTAL FENCING. SEE DETAIL ST9 | 1 EA   |

NO.	STATION	BASE DETAIL	SHAFT DETAIL
14	62+39.5	STRUCTURE NO 11	420-2
15	62+54.4	STRUCTURE NO 12	420-2
16	NOT USED		
18	CONSTRUCT STRUCTURE # 13	SEE DETAIL ST9	1 EA
19	CAP 8" ACP WATER LINE (NPI)		
20	NOT USED		
21	INSTALL CONCRETE PIPE COLLAR PER MAG STD DET 505		2 EA

REVISION

NO.	REVISION	BY	DATE

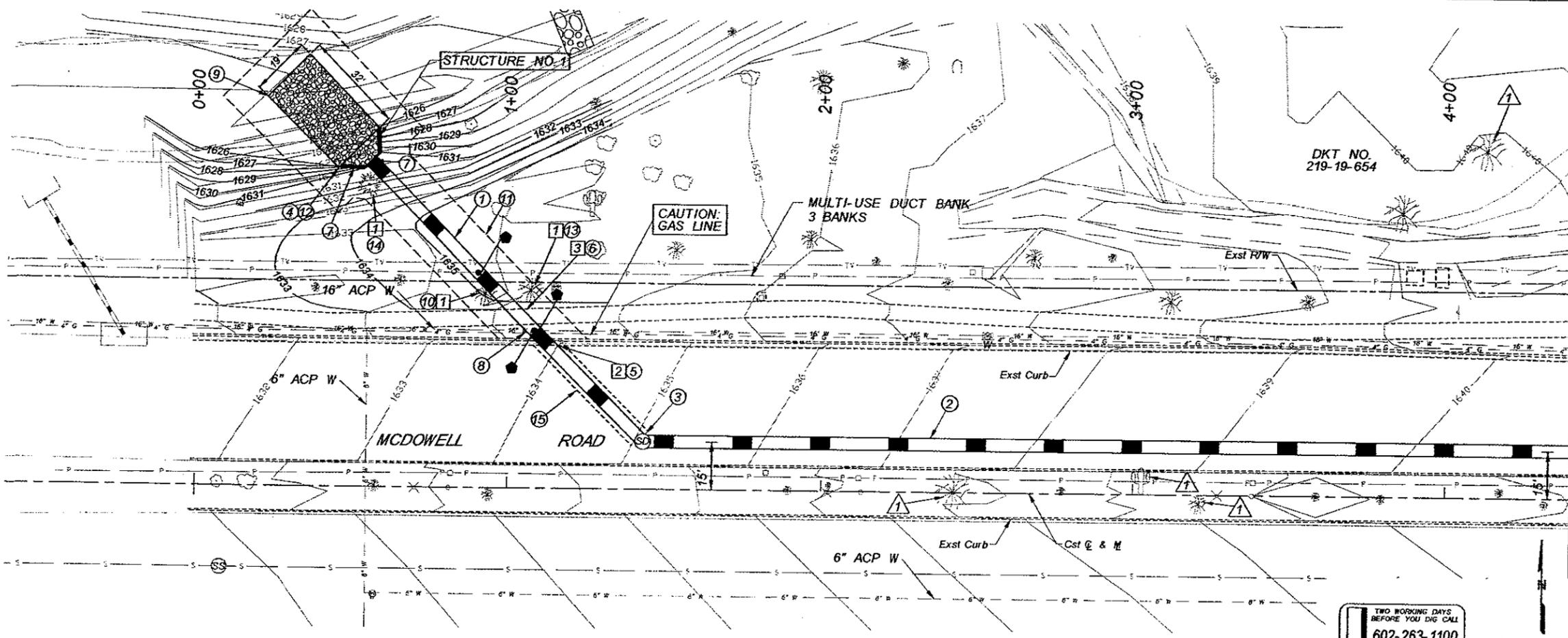
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	DEJ	DATE	10/27/06
DRAWN	DKS	DATE	10/27/06
CHECKED	RAE	DATE	10/27/06

**Kimley-Horn and Associates, Inc.**

DRAWING NO. SD13 PLAN AND PROFILE SHEET STA 59+00 TO STA 64+00 SHEET OF 25 73



TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



MATCH LINE STA 4+40.00

- REMOVE
- ① REMOVE EXISTING VEGETATION (NPI)
- ② REMOVE EXISTING CURB AND GUTTER 14 LF
- ③ REMOVE EXISTING SIDEWALK 8 SY
- CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	0+55.5 - 1+42.9 CLASS V	48"	124
②	1+42.9 - 4+40 CLASS III	48"	298

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL	30" COVER DETAIL
③	1+42.86 MH 1	520	420-2	424

- ④ CONSTRUCT CONCRETE HEADWALL W/ APRON PER MAG STD DETAIL 501-3 WITH FORMLINER AND CONCRETE COLOR 1 EA
- ⑤ CONSTRUCT NEW CURB & GUTTER PER MAG STD DET 220, TYPE A 14 LF
- ⑥ CONSTRUCT NEW SIDEWALK PER MAG STD DET 230 8 SY
- ⑦ INSTALL 48" STORM DRAIN ACCESS BARRIER PER COP DET P-1563 1 EA
- ⑧ RELOCATE 16" WATER LINE PER DETAILS UT1 AND UT2 26 LF
- ⑨ CONSTRUCT RIP-RAP EROSION BLANKET TYPE III, d<sub>50</sub> = 16" LENGTH = 32 FT, WIDTH = 19 FT, DEPTH = 48" 73 SY
- ⑩ INSTALL 24-IN BOX TREE COMPLETE FOOTHILL PALO VERDE (DETAIL 4 DWG LP-3) 1 EA
- ⑪ HYDROSEED LIMITS TYPE B 0.1 AC
- ⑫ INSTALL SAFETY RAIL PER MAG STD DET 145 22 LF
- ⑬ INSTALL 24-IN BOX TREE COMPLETE VELVET MESQUITE (DETAIL 4 DWG LP-3) 1 EA
- ⑭ INSTALL 24-IN BOX TREE COMPLETE CREOSOTE (DETAIL 4 DWG LP-3)
- ⑮ 1 SACK CLSM TO SUBGRADE PER COM M-19.4 TYPE B (NPI)
- △ PROTECT IN PLACE VEGETATION (NPI)

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5

- INDICATES POTHOLE LOCATION
- INDICATES POTHOLE ELEVATION

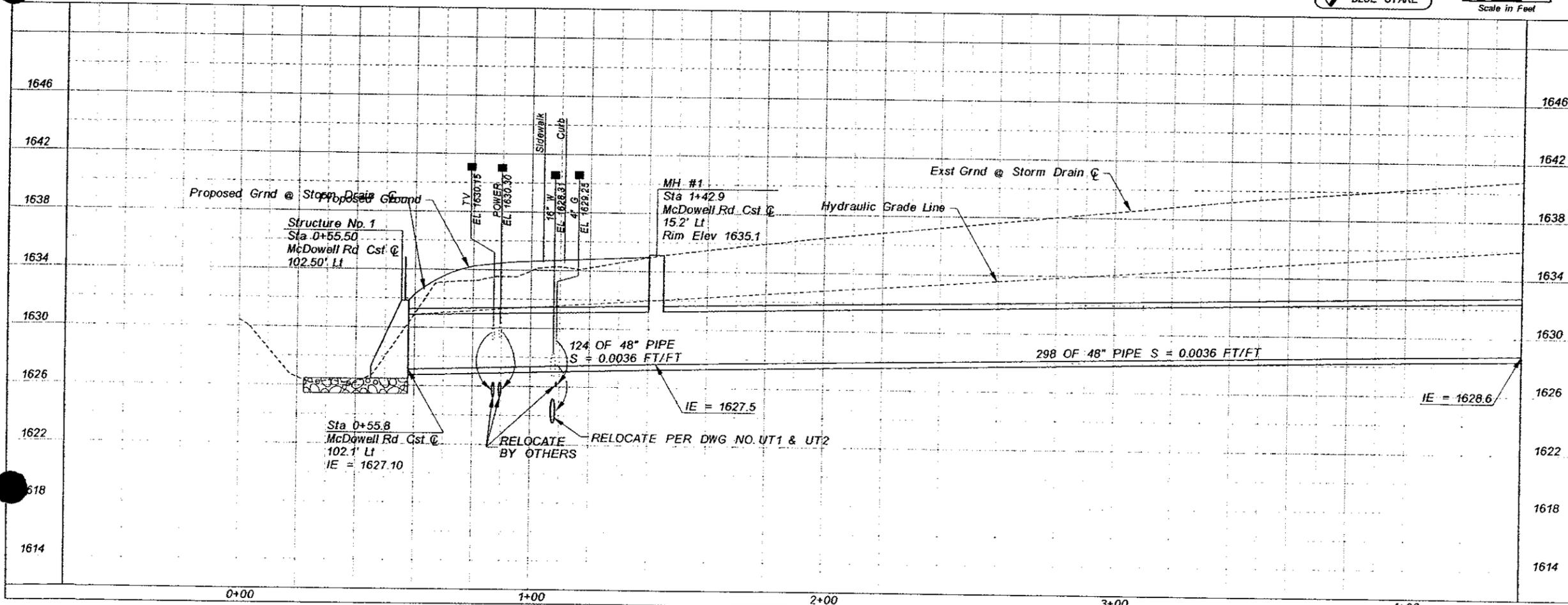
NO.	REVISION	BY	DATE
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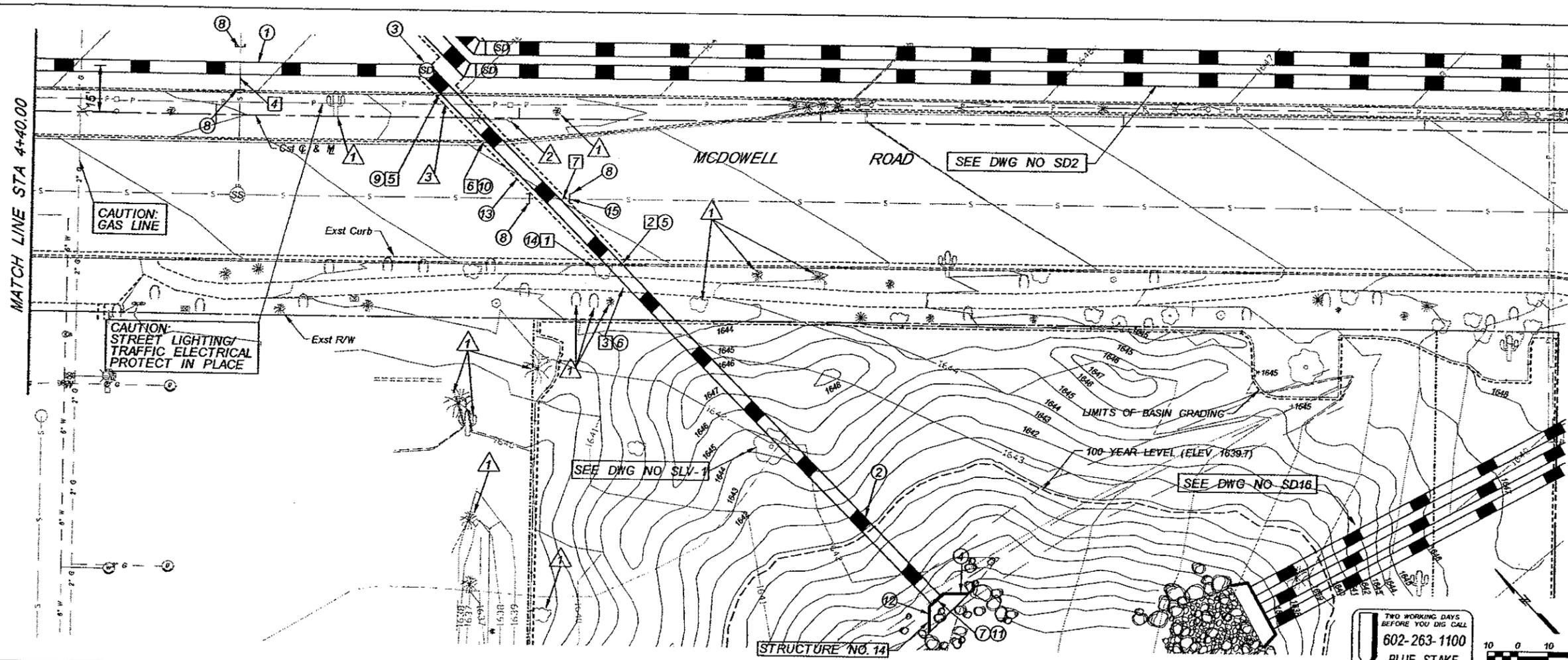
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
PCN 420.03.31

DESIGNED	DEJ	DATE
24767 ROBERT A EICHINGER	DEJ	10/27/06
CHECKED	RAE	10/27/06

DRAWING NO. SD14 PLAN AND PROFILE SHEET STA 0+00 TO STA 4+40 SHEET OF 26 73





- REMOVE
- 1 REMOVE EXISTING VEGETATION (NPI)
  - 2 REMOVE EXISTING CURB AND GUTTER 14 LF
  - 3 REMOVE EXISTING SIDEWALK 8 SY
  - 4 REMOVE EXISTING SANITARY SEWER (NPI)
  - 5 REMOVE EXISTING VERTICAL CURB 14 LF
  - 6 REMOVE EXISTING VERTICAL CURB 14 LF
  - 7 REMOVE EXISTING SANITARY SEWER (NPI)

CONSTRUCT

INSTALL NEW STORM DRAIN PIPE

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	4+40 - 5+69.4 CLASS III	48	129
2	5+69.4 - 7+41.12 CLASS III	48	242

INSTALL NEW 5' DIA STORM DRAIN MANHOLE

NO.	STATION	BASE DETAIL	SHAFT DETAIL	30" COVER DETAIL
3	5+69.4 MH 2	520	420-1	424

- 4 CONSTRUCT CONCRETE HEADWALL W/ APRON PER MAG STD DETAIL 501-3 WITH FORMLINER, CONCRETE COLOR, AND TRASH RACK. SEE DETAIL DT2 1 EA
- 5 CONSTRUCT NEW CURB & GUTTER PER MAG STD DET 220, TYPE A 14 LF
- 6 CONSTRUCT NEW SIDEWALK PER MAG STD DET 230 8 SY
- 7 INSTALL 48" STORM DRAIN ACCESS BARRIER PER COP DET P-1563 1 EA
- 8 PLUG EXISTING SANITARY SEWER LINE PER MAG STD DET 427 4 EA
- 9 CONSTRUCT VERTICAL CURB PER MAG STD DET 222 TYPE A 14 LF
- 10 CONSTRUCT VERTICAL CURB PER MAG STD DET 222 TYPE A 14 LF
- 11 INSTALL 41" DIAMETER RESTRICTOR PLATE (SEE DT1) 1 EA
- 12 INSTALL SAFETY RAIL PER MAG STD DET 145 18 LF
- 13 1 SACK CLSM TO SUBGRADE PER COM M-19.4 TYPE B (NPI)
- 14 INSTALL 5 GALLON COMPLETE CREOSOTE (DETAIL 2 DWG LP-6) 1 EA
- 15 CONSTRUCT 4" DIA PVC SANITARY SEWER/FERRIC CHLORIDE LINE PER DETAIL THIS SHEET 1 EA

- 1 PROTECT IN PLACE VEGETATION (NPI)
- 2 PROTECT IN PLACE (LIGHT POLE) (NPI)
- 3 PROTECT IN PLACE (STREET LIGHTING AND POWER LINE) (NPI)

PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5

- INDICATES POTHOLE LOCATION
- INDICATES POTHOLE ELEVATION

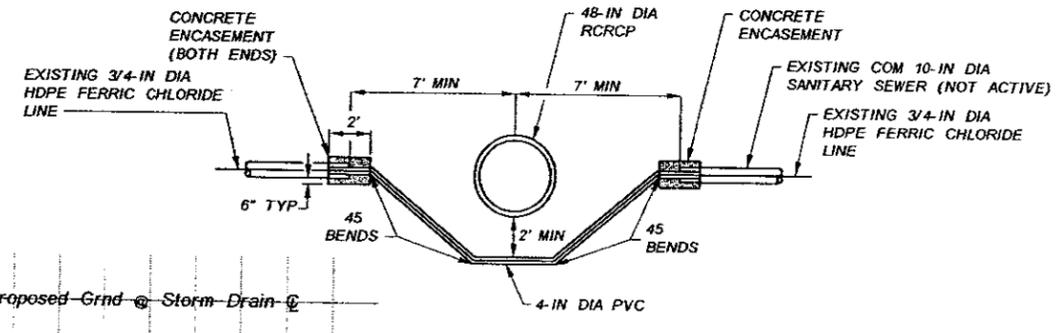
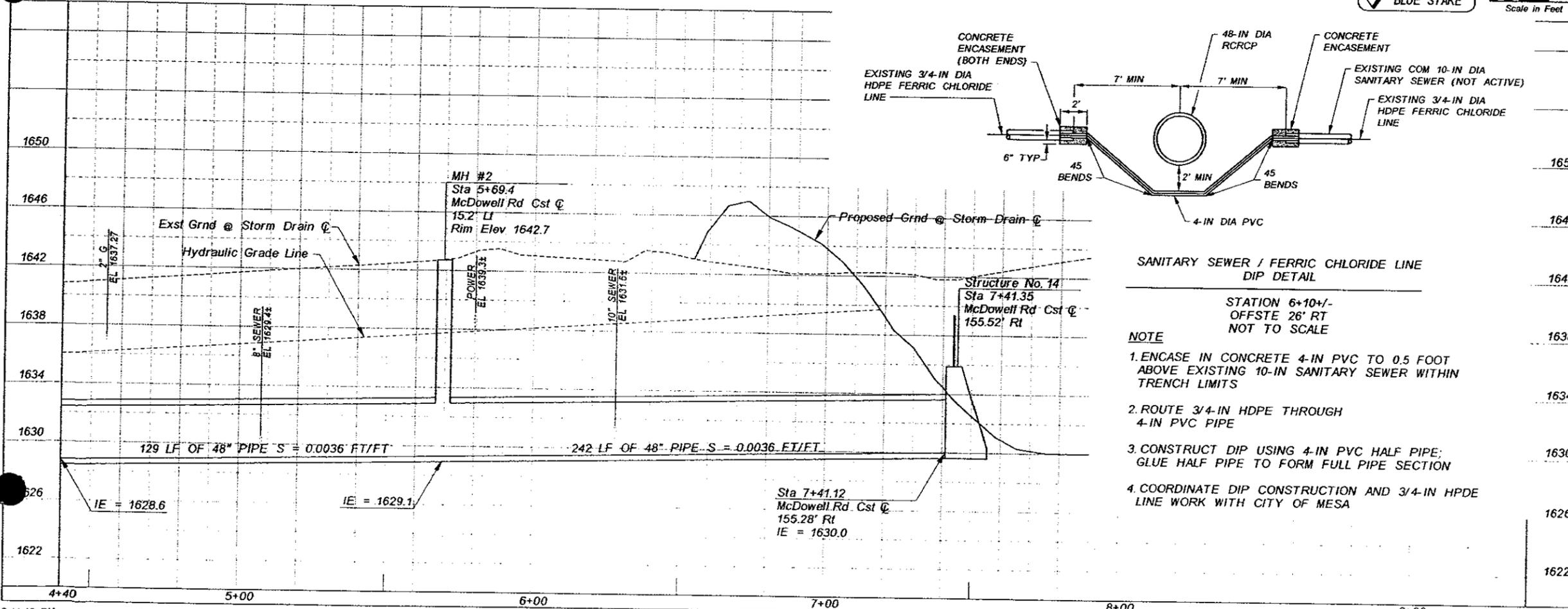
NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION

MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31

	BY	DATE
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

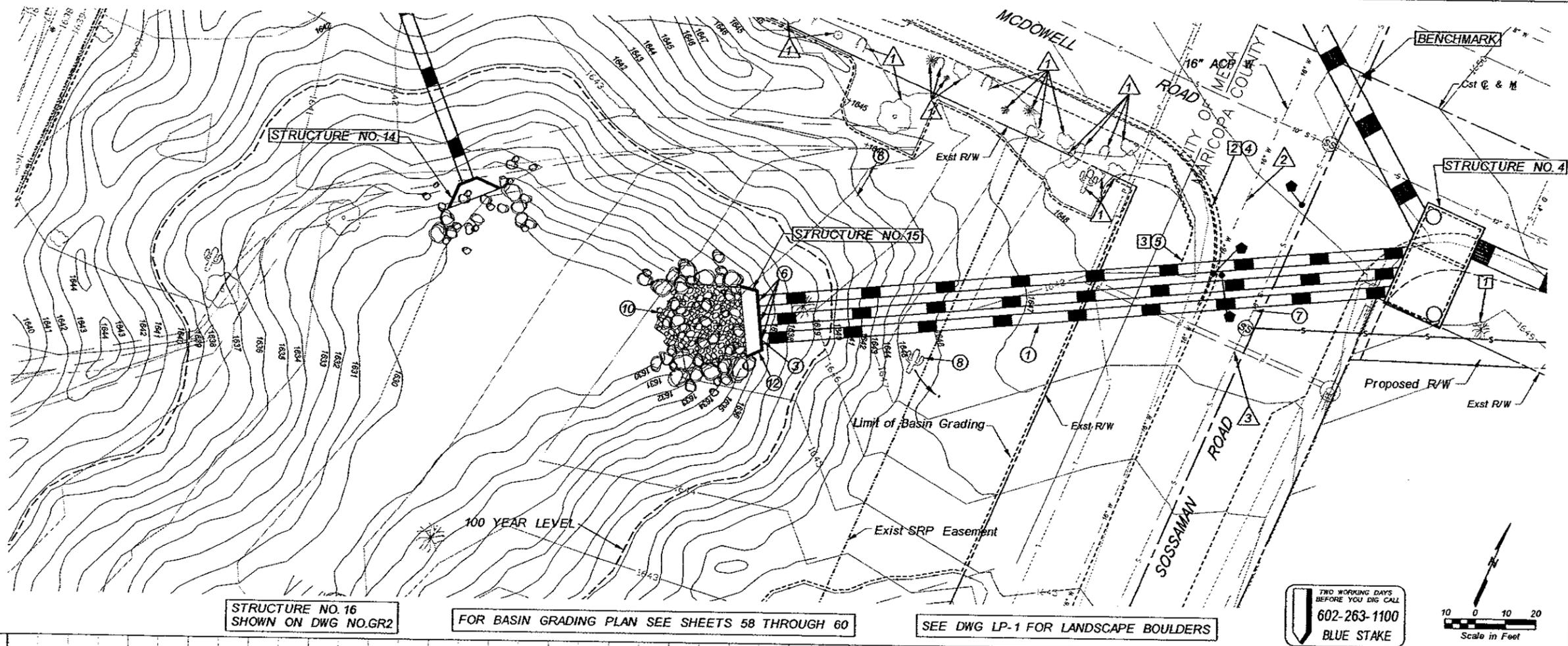
DRAWING NO. SD15 PLAN AND PROFILE SHEET STA 4+40 TO STA 6+60 SHEET OF 27 73



SANITARY SEWER / FERRIC CHLORIDE LINE DIP DETAIL

STATION 6+10+/- OFFSTE 26' RT NOT TO SCALE

- NOTE
1. ENCASE IN CONCRETE 4-IN PVC TO 0.5 FOOT ABOVE EXISTING 10-IN SANITARY SEWER WITHIN TRENCH LIMITS
  2. ROUTE 3/4-IN HDPE THROUGH 4-IN PVC PIPE
  3. CONSTRUCT DIP USING 4-IN PVC HALF PIPE; GLUE HALF PIPE TO FORM FULL PIPE SECTION
  4. COORDINATE DIP CONSTRUCTION AND 3/4-IN HDPE LINE WORK WITH CITY OF MESA

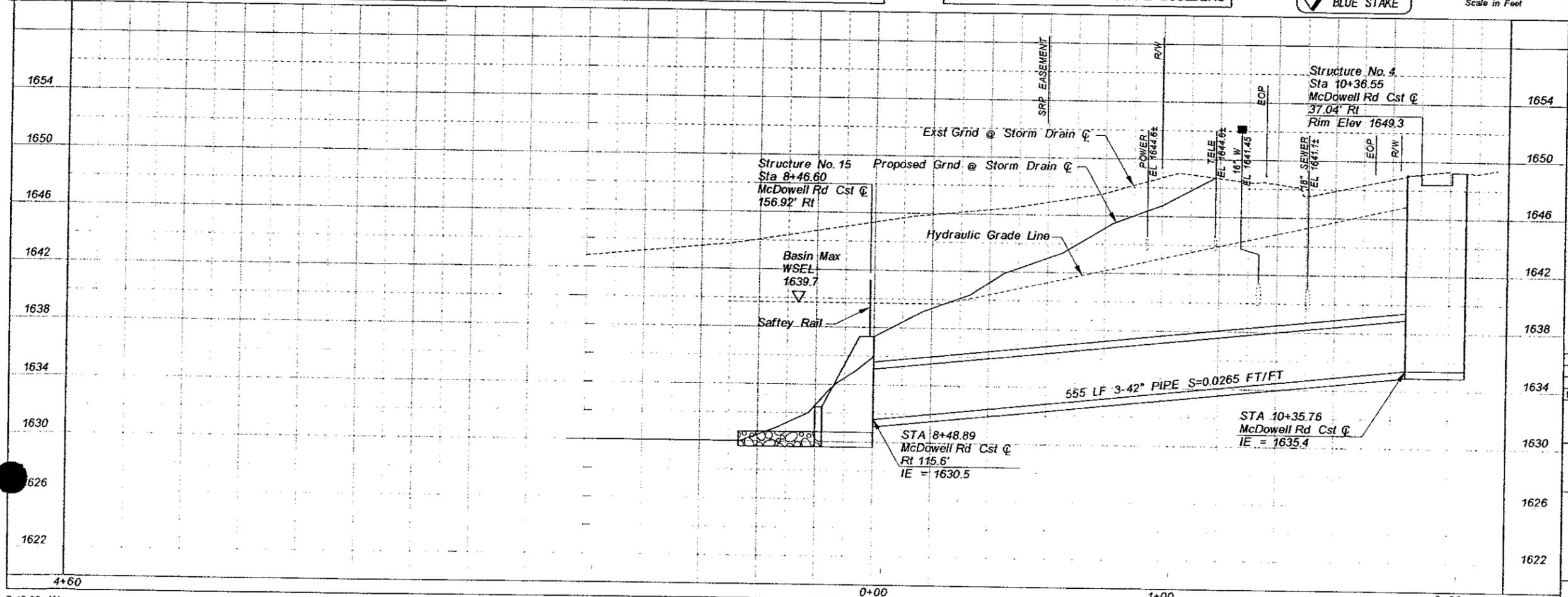
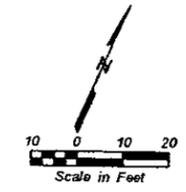


STRUCTURE NO. 16  
SHOWN ON DWG NO.GR2

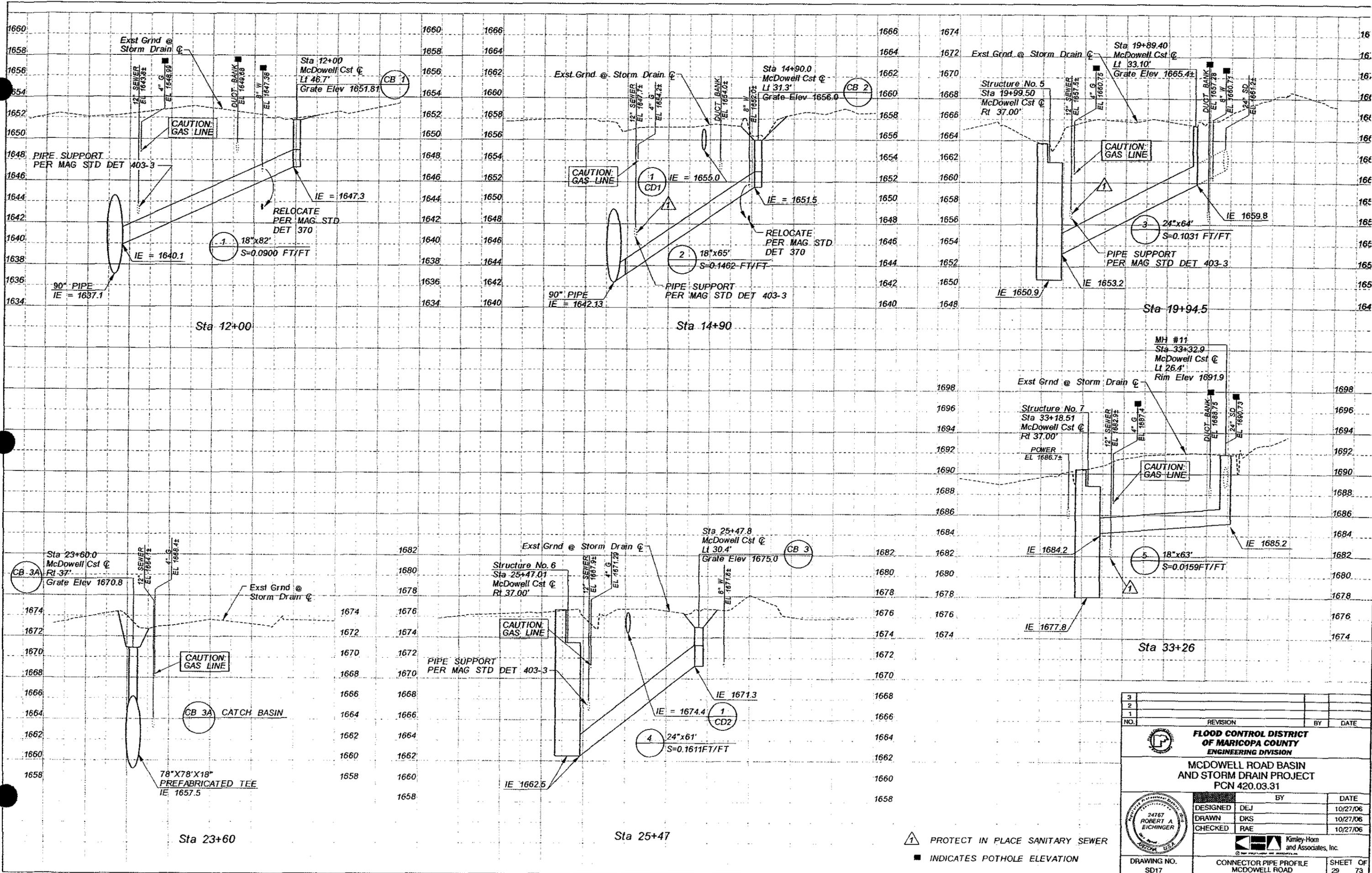
FOR BASIN GRADING PLAN SEE SHEETS 58 THROUGH 60

SEE DWG LP-1 FOR LANDSCAPE BOULDERS

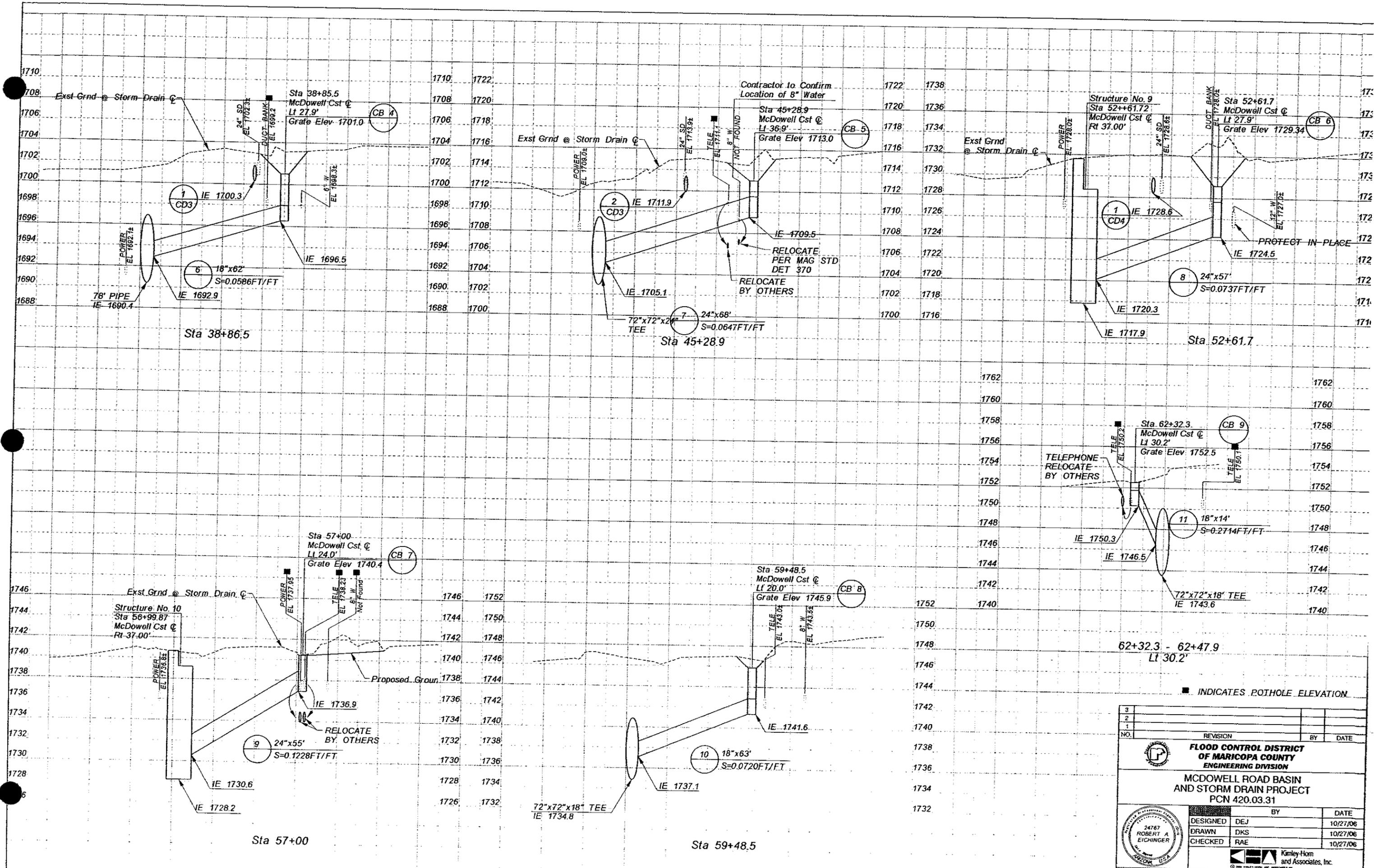
TWO WORKING DAYS  
BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



REMOVE			
1	REMOVE EXISTING VEGETATION (NPI)		
2	REMOVE EXISTING CURB AND GUTTER 18 LF		
3	REMOVE EXISTING SIDEWALK	10 SY	
CONSTRUCT			
INSTALL NEW STORM DRAIN PIPE			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	8+46.62 - 10+36.0	CLASS V 3-42	555
INSTALL NEW RCBC			
NO.	STATION TO STATION	WIDTH HEIGHT	LENGTH FEET
2	NOT USED		
3	CONSTRUCT CONCRETE OUTLET HEADWALL W/ APRON PER MAG STD DET 501-3 WITH FORMLINER AND CONCRETE COLOR		1 EA
4	CONSTRUCT NEW CURB & GUTTER PER MAG STD DET 220, TYPE A		18 LF
5	CONSTRUCT NEW SIDEWALK PER MAG STD DET 230		10 SY
6	INSTALL 42" STORM DRAIN ACCESS BARRIER PER COP DET P-1563		3 EA
7	PIPE SUPPORT PER MAG STD DET 403-3		28 LF
8	SALVAGE AND RELOCATE SAGUARO		15 LF
9	NOT USED		
10	CONSTRUCT RIP RAP EROSION BLANKET TYPE I, SEE DWG NO.DT2		1 LS
11	NOT USED		
12	INSTALL SAFTEY RAIL PER MAG STD DET 145		22 LF
1	PROTECT IN PLACE VEGETATION (NPI)		
2	PROTECT IN PLACE (16" DIP W) (NPI)		
3	PROTECT IN PLACE (18" SEWER) (NPI)		
PAVEMENT REMOVAL AND REPLACEMENT SEE SHEETS RD1-RD5			
◆	INDICATES POTHOLE LOCATION		
■	INDICATES POTHOLE ELEVATION		
NO.	REVISION	BY	DATE
3			
2			
1			
<b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
DESIGNED	DEJ	BY	DATE
DRAWN	DKS		10/27/06
CHECKED	RAE		10/27/06
Kimley-Horn and Associates, Inc.			
DRAWING NO.	PLAN AND PROFILE SHEET	SHEET OF	
SD16	STA 4+00 TO STA 7+00	28	73

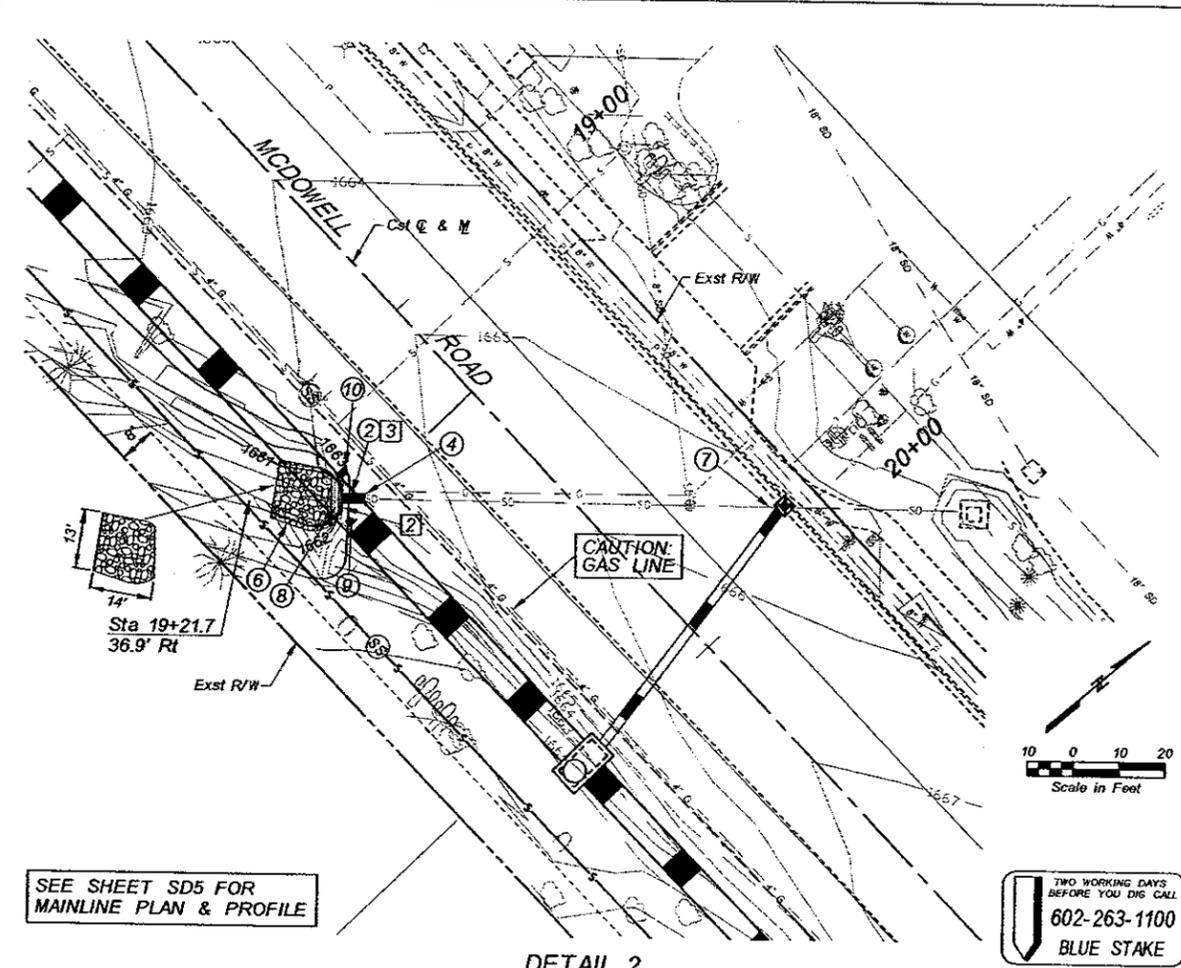
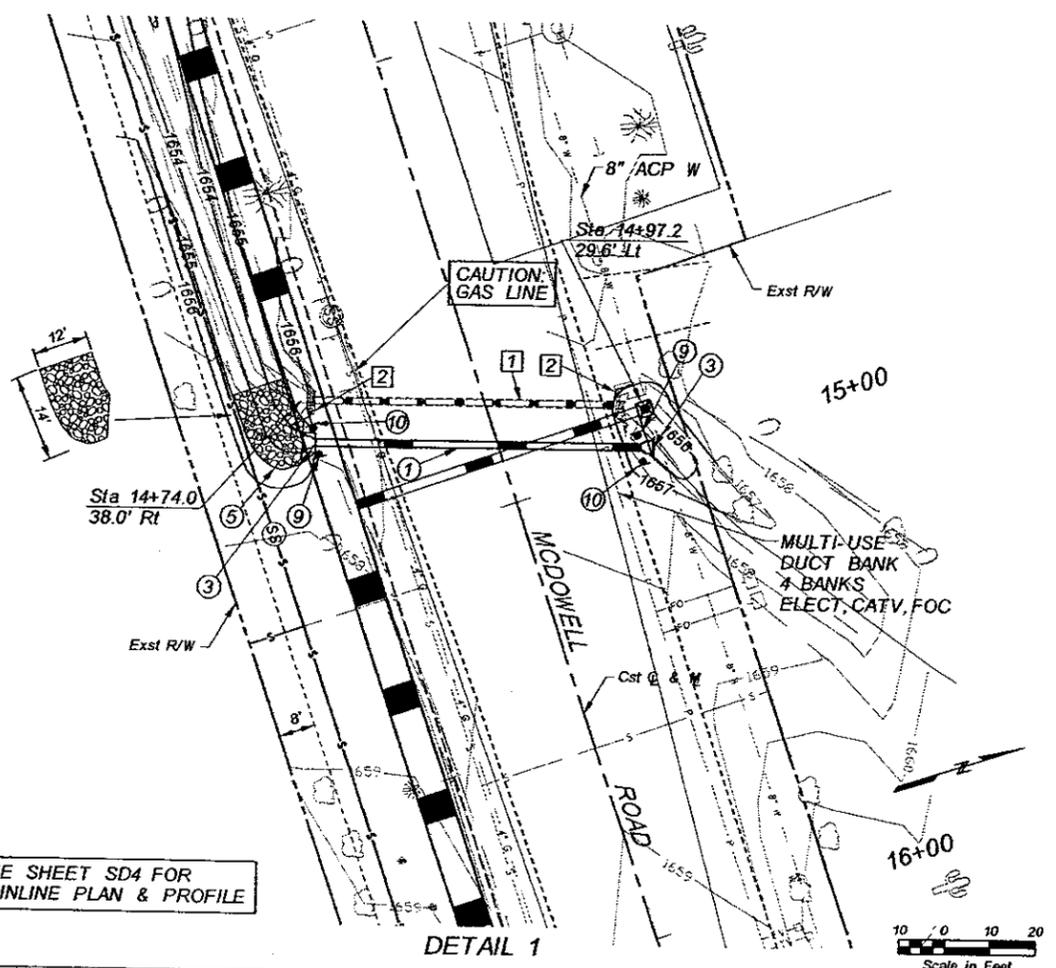


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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
		BY	DATE
DESIGNED		DEJ	10/27/06
DRAWN		DKS	10/27/06
CHECKED		RAE	10/27/06
DRAWING NO. SD17		CONNECTOR PIPE PROFILE MCDOWELL ROAD	
		SHEET OF 29 73	



■ INDICATES POT HOLE ELEVATION

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> <b>ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> <b>PCN 420.03.31</b>			
		BY	DATE
		DESIGNED DEJ	10/27/06
		DRAWN DKS	10/27/06
		CHECKED RAE	10/27/06
		 <b>Kimley-Horn and Associates, Inc.</b>	
DRAWING NO. SD18		CONNECTOR PIPE PROFILE MCDOWELL ROAD	
		SHEET OF 73	

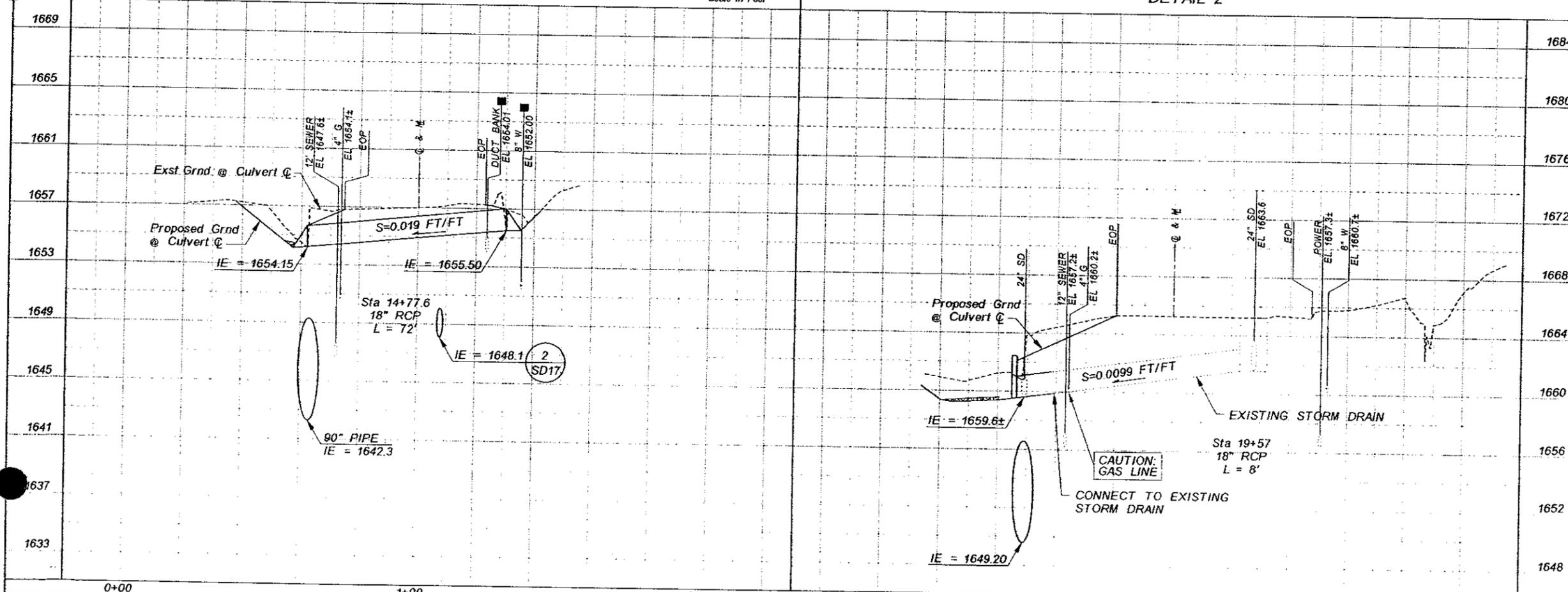


REMOVE			
1	REMOVE EXISTING CROSS CULVERT	68 LF	
2	REMOVE EXISTING HEADWALL	3 EA	
3	REMOVE EXISTING 50 x 31 ARCH CULVERT	8 LF	
CONSTRUCT			
INSTALL NEW CULVERT			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	14+77.6 CLASS V	18	72
2	19+57 CLASS III RGRCP	50x31 Arch	8
3	INSTALL FLARED END SECTION PER MAG STD DET 545		2 EA
4	CONNECT TO EXISTING STORM DRAIN WITH PIPE COLLAR PER MAG STD DET 505		1 EA
5	CONSTRUCT RIP-RAP EROSION BLANKET, TYPE I, $d_{50} = 6"$ , LENGTH = 14 FT, WIDTH = 12 FT, DEPTH = 18"		19 SY
6	CONSTRUCT RIP-RAP EROSION BLANKET, TYPE I, $d_{50} = 6"$ , LENGTH = 14 FT, WIDTH = 13 FT, DEPTH = 18"		20 SY
7	PLUG AND ABANDON 24" DIAMETER STORM DRAIN PER MAG STD DET 427		1 EA
8	INSTALL HEADWALL FOR ARCH PIPE PER MAG STD DET 501-3		1 EA
9	INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)L		3 EA
10	INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)R		3 EA

SEE SHEET SD4 FOR MAINLINE PLAN & PROFILE

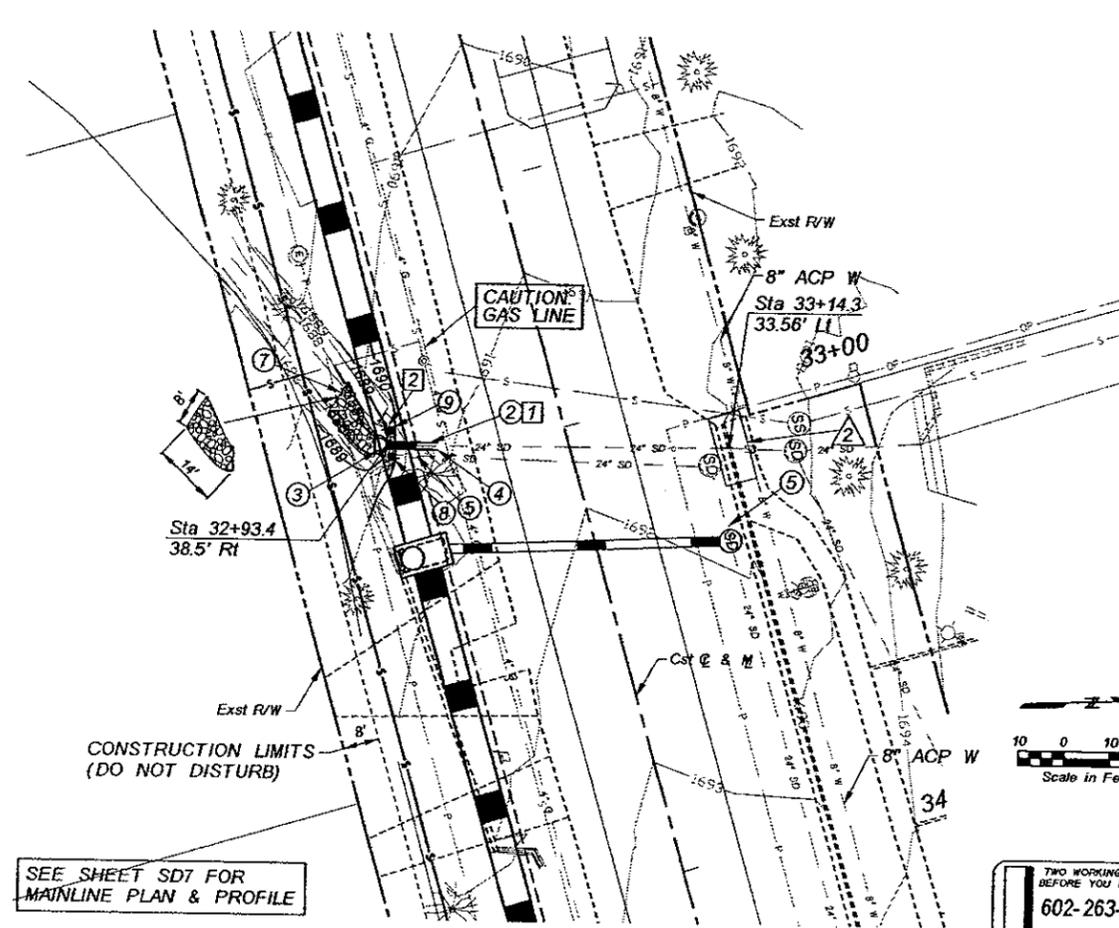
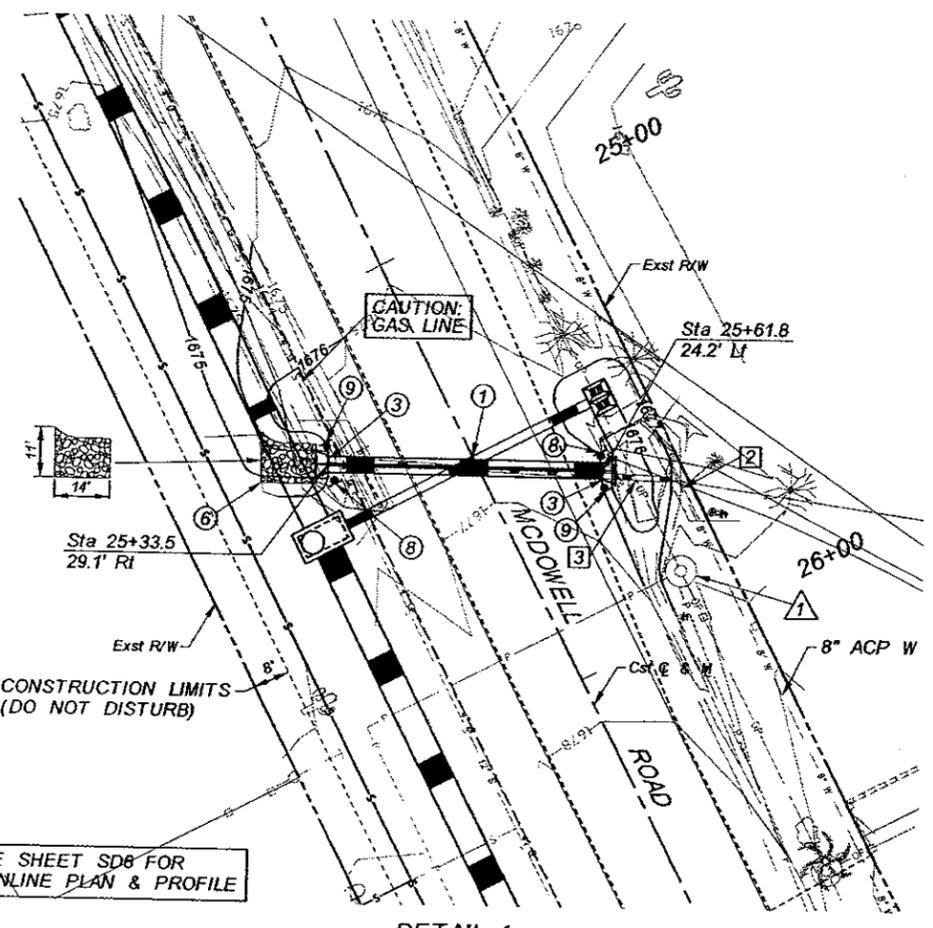
SEE SHEET SD5 FOR MAINLINE PLAN & PROFILE

TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



**NOTE:**  
GRADING SHALL BE COMPLETED AT EACH INLET AND OUTLET AS NOTED ON PLAN VIEW AND SHALL BE GRADED TO DRAIN IN A POSITIVE MANNER (NPI)

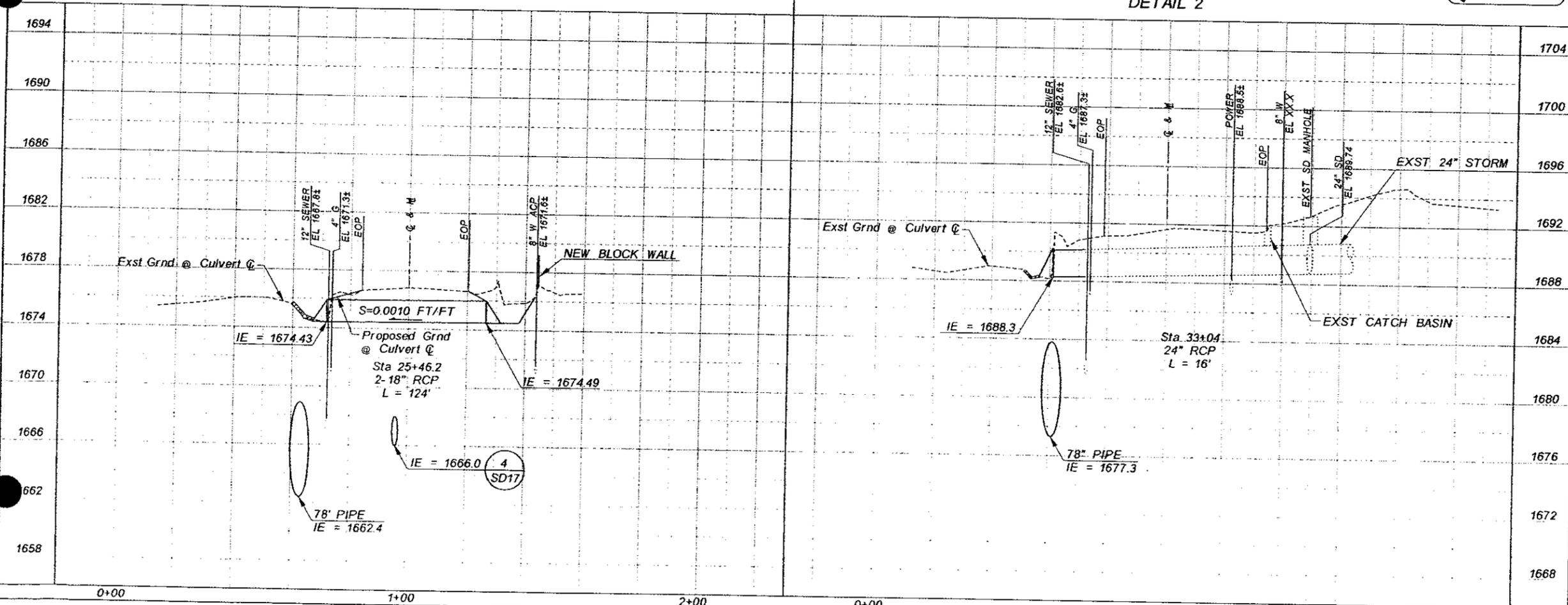
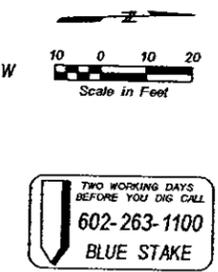
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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
		BY	DATE
	DESIGNED	DEJ	10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06
DRAWING NO.	CULVERT DETAIL SHEET		SHEET OF
CD1	STA 14+77.6 & STA 19+57		31 73



□ REMOVE □			
1	REMOVE EXISTING 24" DIAMETER STORM DRAIN		16 LF
2	REMOVE EXISTING HEADWALL		2 EA
3	REMOVE EXISTING 18' DIAMETER CULVERT		66 LF
○ CONSTRUCT ○			
INSTALL NEW CULVERT			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	25+46.2 CLASS V	2-18	124
2	33+04 CLASS V	24	16
3	INSTALL FLARED END SECTION PER MAG STD DET 545		5 EA
4	CONNECT TO EXISTING 24" STORM DRAIN PER MAG STD DET 505		1 EA
5	PLUG EXISTING STORM DRAIN PER MAG STD DET 427		2 EA
6	CONSTRUCT RIP-RAP EROSION BLANKET TYPE I, d <sub>50</sub> = 6", LENGTH = 14 FT, WIDTH = 11 FT, DEPTH = 18"		17 SY
7	CONSTRUCT RIP-RAP EROSION BLANKET TYPE I, d <sub>50</sub> = 6", LENGTH = 14 FT, WIDTH = 8 FT, DEPTH = 18"		12 SY
8	INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)L		3 EA
9	INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)R		3 EA

SEE SHEET SD6 FOR MAINLINE PLAN & PROFILE

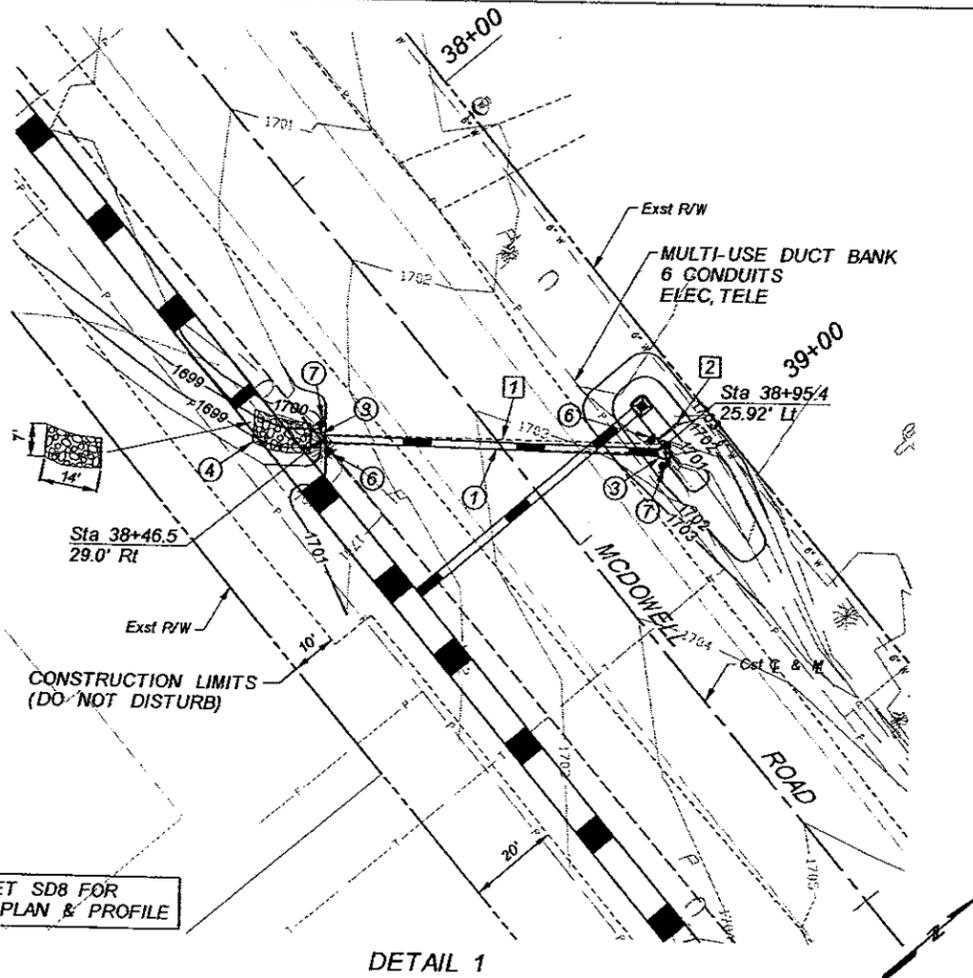
SEE SHEET SD7 FOR MAINLINE PLAN & PROFILE



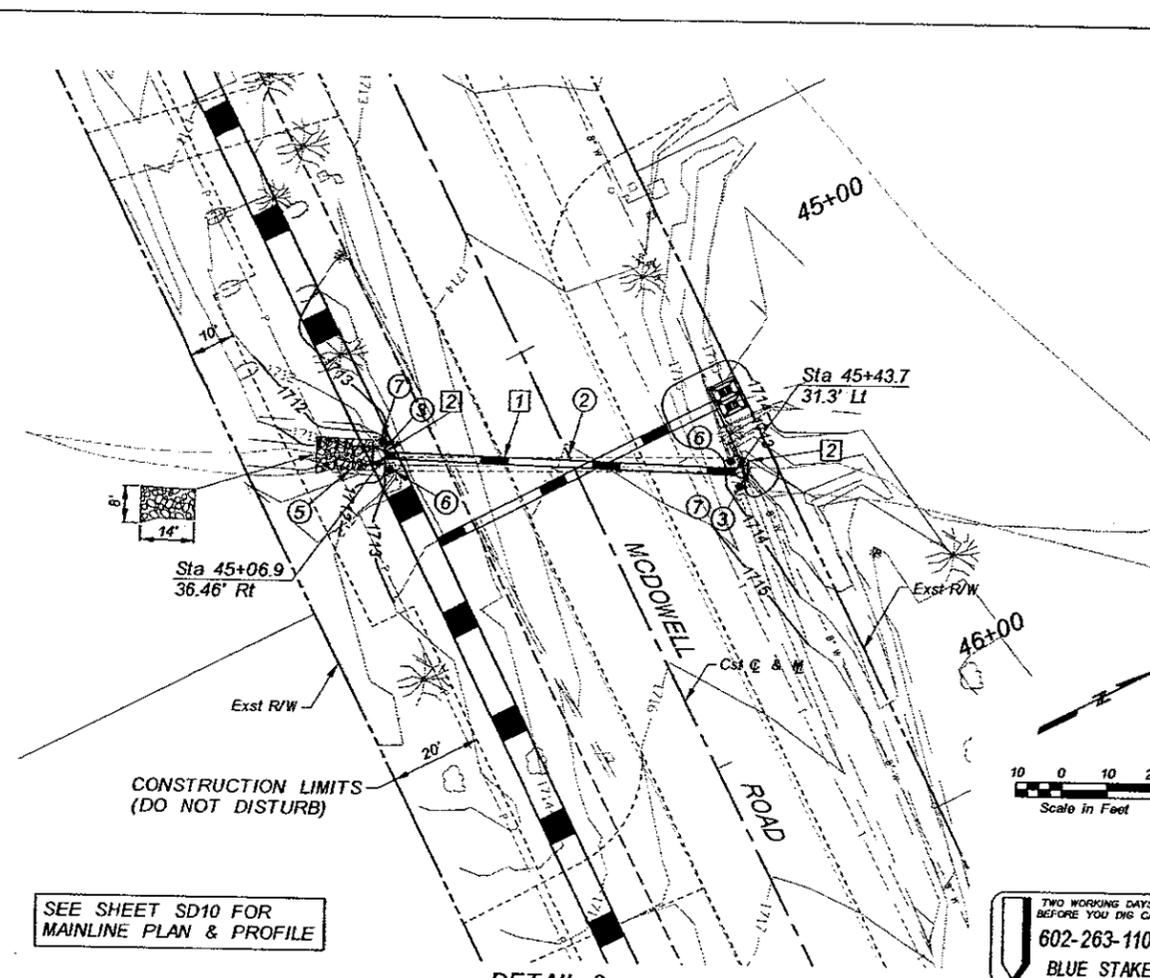
**NOTE:**  
GRADING SHALL BE COMPLETED AT EACH INLET AND OUTLET AS NOTED ON PLAN VIEW AND SHALL BE GRADED TO DRAIN IN A POSITIVE MANNER (NPI)

▲ 1 PROTECT IN PLACE (POWER POLE) (N.P.I.)  
▲ 2 PROTECT IN PLACE (EXISTING CATCH BASIN) (N.P.I.)

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NO.	REVISION	BY	DATE
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
		BY	DATE
DESIGNED	DEJ		10/27/06
DRAWN	DKS		10/27/06
CHECKED	RAE		10/27/06
DRAWING NO.	CULVERT DETAIL SHEET	SHEET OF	
CD2	STA 25+46.2 & STA 33+04	32	73



DETAIL 1



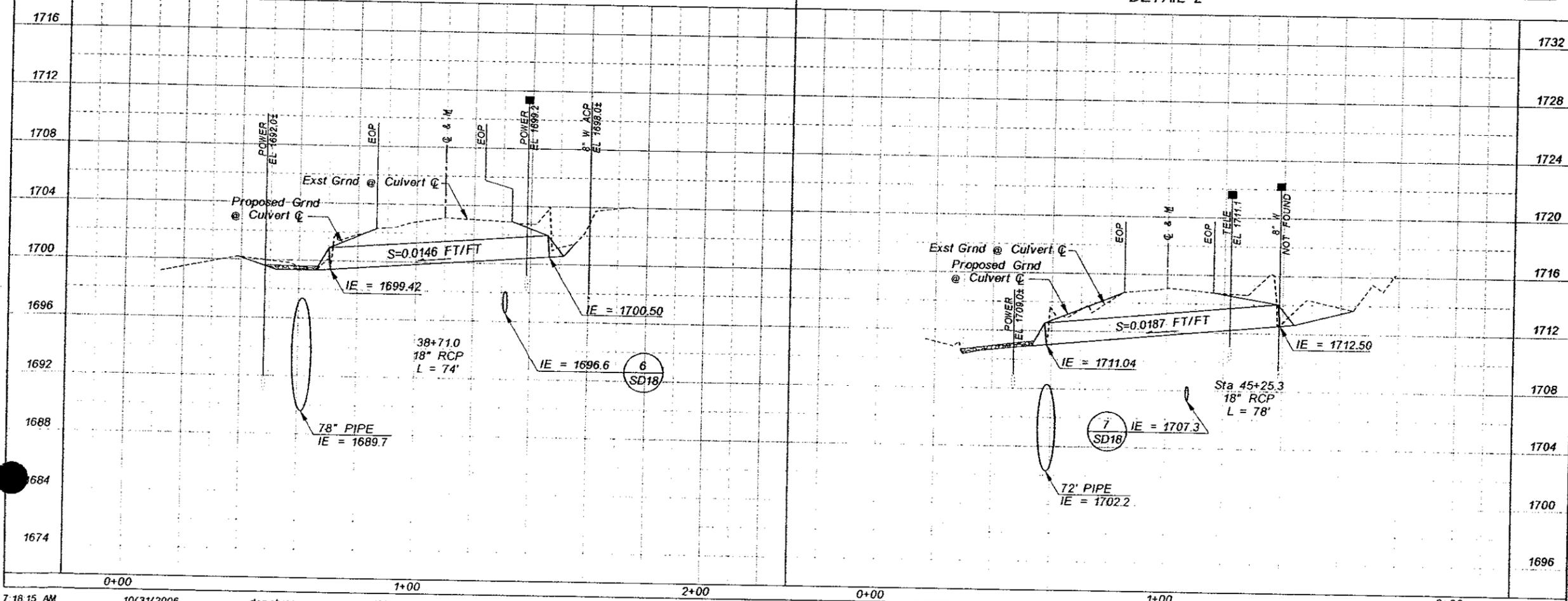
DETAIL 2

SEE SHEET SD8 FOR MAINLINE PLAN & PROFILE

SEE SHEET SD10 FOR MAINLINE PLAN & PROFILE

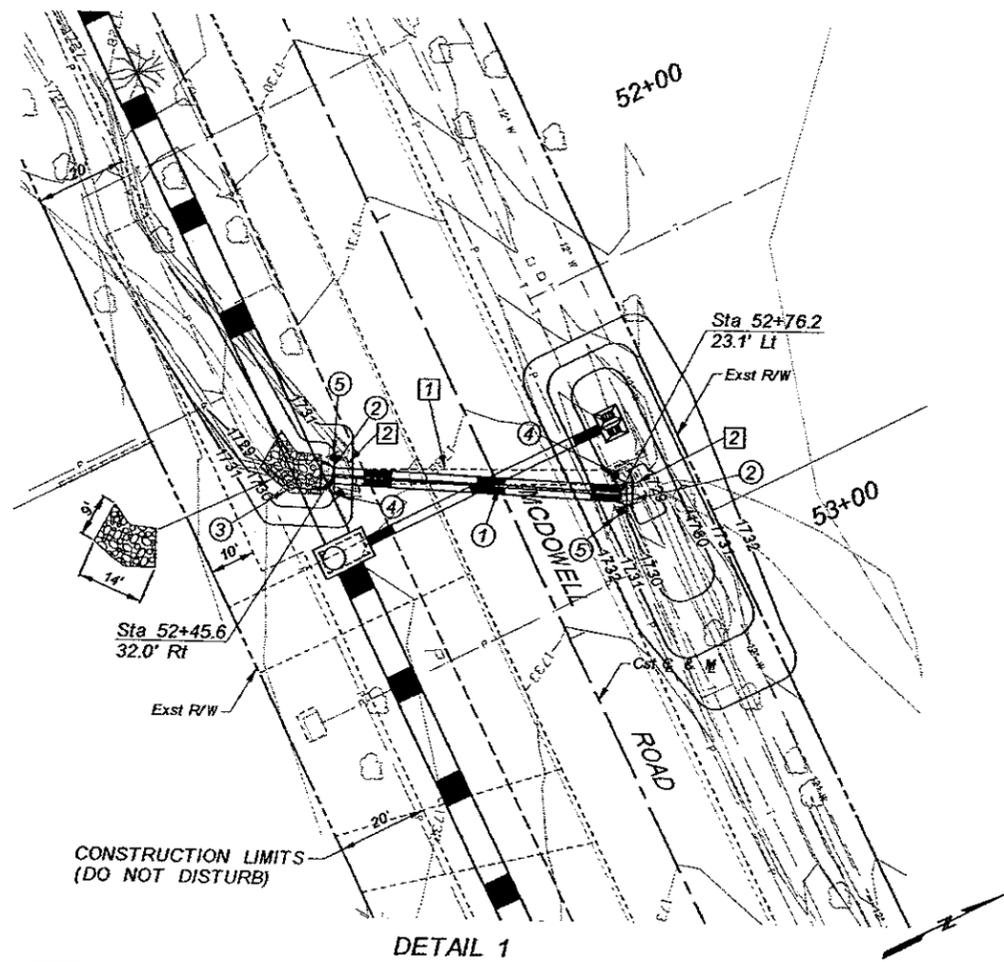
TWO WORKING DAYS BEFORE YOU DIG CALL 602-263-1100 BLUE STAKE

<input type="checkbox"/> REMOVE <input type="checkbox"/>			
1	REMOVE EXISTING CROSS CULVERT	156 LF	
2	REMOVE EXISTING HEAD WALL	3 EA	
<input type="checkbox"/> CONSTRUCT <input type="checkbox"/>			
INSTALL NEW CULVERT			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
1	38+71.0 CLASS V	18	74
2	45+25.3 CLASS V	18	78
3	INSTALL FLARED END SECTION PER MAG STD DET 545		4 EA
4	CONSTRUCT RIP-RAP EROSION BLANKET, TYPE I, $d_{50} = 6"$ , LENGTH = 14 FT, WIDTH = 7 FT, DEPTH = 18"		11 SY
5	CONSTRUCT RIP-RAP EROSION BLANKET, TYPE I, $d_{50} = 6"$ , LENGTH = 14 FT, WIDTH = 8 FT, DEPTH = 18"		12 SY
6	INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)L		4 EA
7	INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)R		4 EA

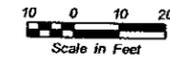


NOTE:  
GRADING SHALL BE COMPLETED AT EACH INLET AND OUTLET AS NOTED ON PLAN VIEW AND SHALL BE GRADED TO DRAIN IN A POSITIVE MANNER (NPI)

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NO.	REVISION	BY	DATE
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
DESIGNED		DEJ	10/27/06
DRAWN		DKS	10/27/06
CHECKED		RAE	10/27/06
BY			DATE
24167 ROBERT A EICHINGER			10/27/06
DRAWING NO. CD3	CULVERT DETAIL SHEET STA 38+71.0 & STA 45+25.3		SHEET OF 33 73



DETAIL 1



TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE

- REMOVE
- ① REMOVE EXISTING CROSS CULVERT 58 LF
  - ② REMOVE EXISTING HEADWALL 2 EA

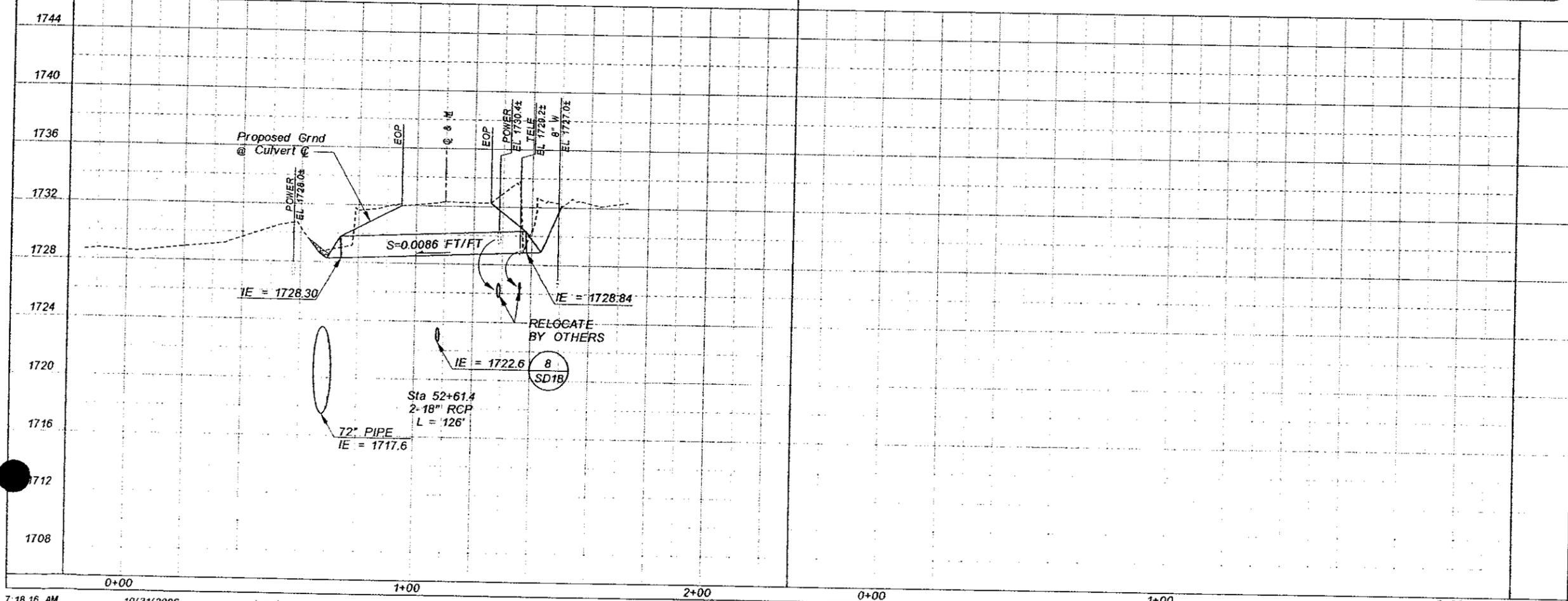
CONSTRUCT

INSTALL NEW CULVERT

NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	52+61.4 CLASS III	2-18	126

- ② INSTALL FLARED END SECTION PER MAG STD DET 545 4 EA
- ③ CONSTRUCT RIP-RAP EROSION BLANKET, TYPE I,  $d_{50} = 6"$ , LENGTH = 14 FT, WIDTH = 9 FT, DEPTH = 18" 14 SY
- ④ INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)L 2 EA
- ⑤ INSTALL OBJECT MARKER PER ADOT STD DET M-23, M-24, TYPE 3(1)R 2 EA

**NOTE:**  
GRADING SHALL BE COMPLETED AT EACH INLET AND OUTLET AS NOTED ON PLAN VIEW AND SHALL BE GRADED TO DRAIN IN A POSITIVE MANNER (NPI)



NO.	REVISION	BY	DATE
3			
2			
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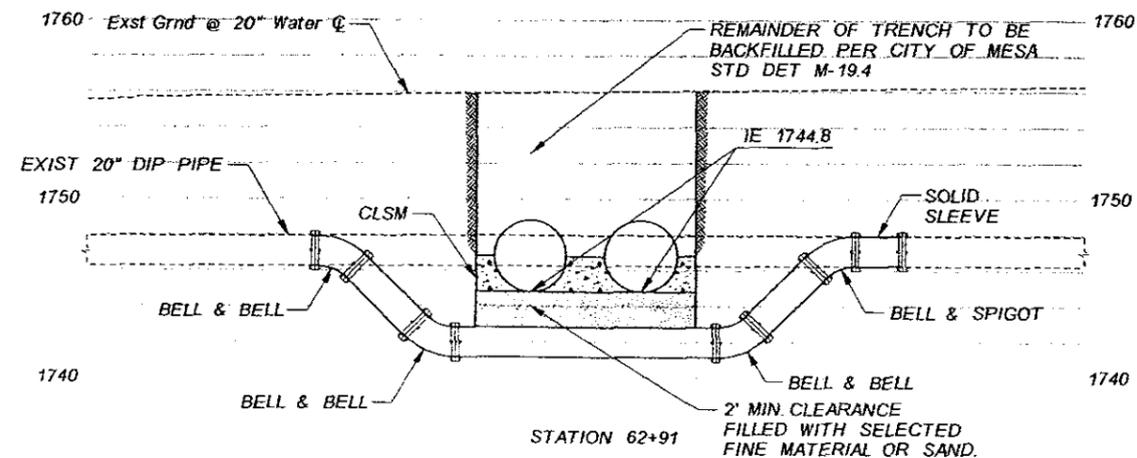
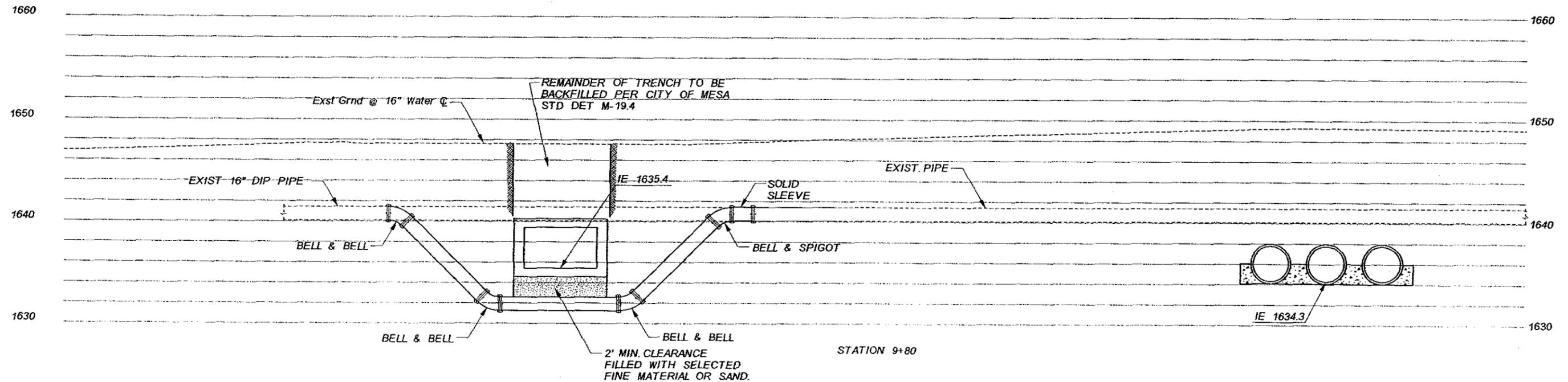
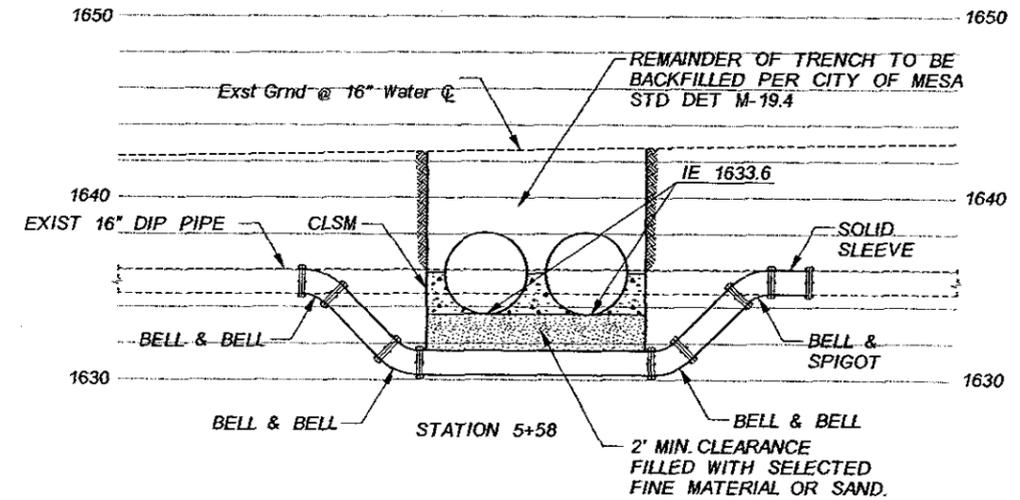
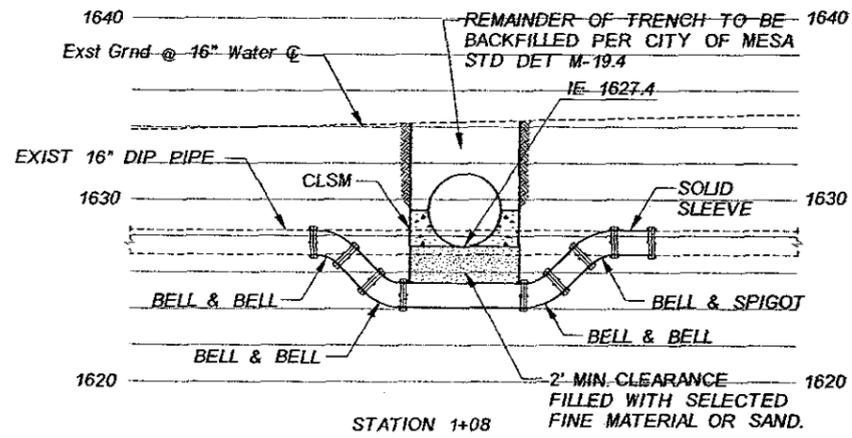
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
PCN 420.03.31

	BY	DATE
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

**Kimley-Horn and Associates, Inc.**

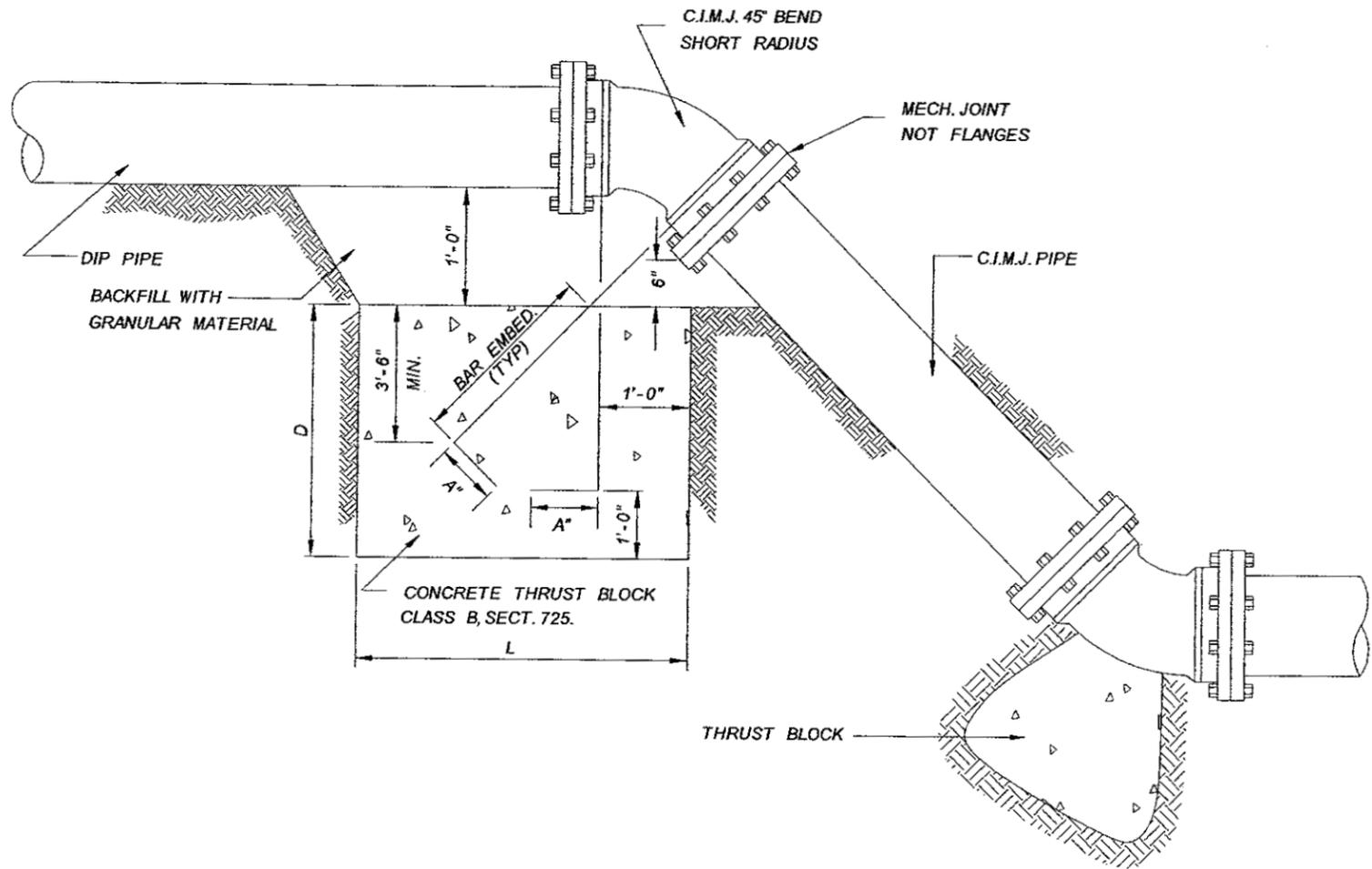
DRAWING NO. CD4  
CULVERT DETAIL SHEET STA 52+61.4  
SHEET OF 34 73



NOTES:

1. JOINT RESTRAINT PER MAG STD DET 303
2. PIPE TO BE DUCTILE IRON.
3. THIS DETAIL COVERS VERTICAL RELOCATION OF WATER MAINS 16" TO 20" ONLY.
4. DROP SECTION IS TO BE PREFABRICATED AND INSTALLED AS A SINGLE UNIT.
5. MECHANICAL RESTRAINING SYSTEMS SHALL BE INSTALLED PER CITY OF MESA ENGINEERING AND DESIGN STANDARDS.
6. THRUST BLOCKS TO BE INSTALLED ON UPSTREAM AND DOWNSTREAM PIPE PER DWG NO UT2.

3			
2			
1			
NO.	REVISION	BY	DATE
<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</p>			
		BY	DATE
DESIGNED		DEJ	10/27/06
DRAWN		DKS	10/27/06
CHECKED		RAE	10/27/06
DRAWING NO.	WATERLINE RELOCATION DETAIL		SHEET OF
UT1			35 73



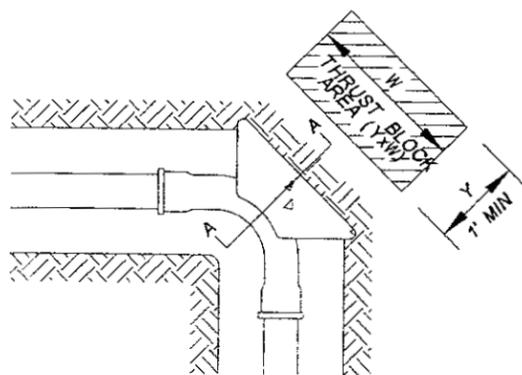
PIPE SIZE	MIN. BAR SIZE	BAR EMBEDMENT	"A"-DIMENSION (HOOK)	MIN. * BLOCK DIM. WxDxL
16"	#9	5'-0"	1'-7"	6'x6'x6'
20"	#11	6'-0"	2'-0"	6'x7'x7'

\* FOR 150 PSI WORKING PRESSURE

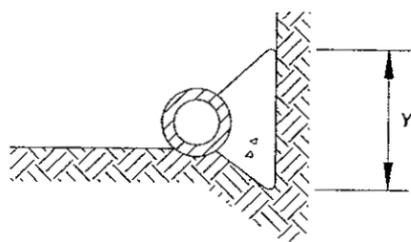
**ANCHOR BLOCK NOTES:**

1. BARS TO CONCRETE THRUST BLOCKS TO BE COATED WITH 2 COATS COAL TAR, EPOXY OR BY OTHER APPROVED METHOD. BARS TO HAVE 90° HOOK ON LOWER END, AS PER TABLE.
2. DUCTILE IRON PIPE MAY BE USED.

**ANCHOR BLOCKS FOR VERTICAL BENDS**



**THRUST BLOCKS FOR WATER LINES**



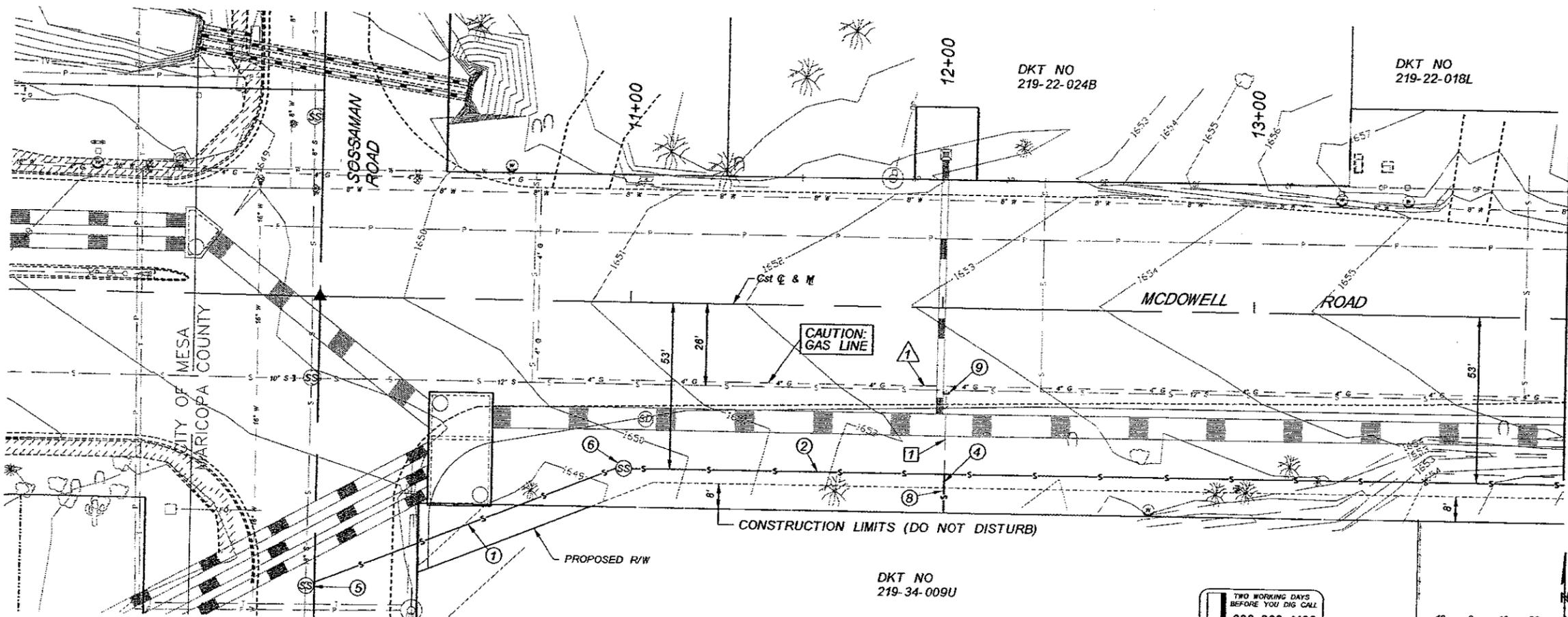
**SECTION A-A**

PIPE SIZE	MINIMUM THRUST BLOCK AREA REQUIRED (YxW)	
	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° & 22 1/2° BENDS
16"	NA	9 SQ. FEET
20"	NA	14 SQ. FEET

**THRUST BLOCK NOTES:**

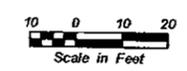
1. TABLE IS BASED ON 150 P.S.I. TEST PRESSURE AND 3000 LBS/SQFT SOIL. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. THRUST BLOCKS ARE TO EXTEND TO UNDISTURBED GROUND. CONCRETE TO BE CLASS C, SECTION 725.
3. FORM ALL NON-BEARING VERTICAL SURFACES.

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NO.	REVISION	BY	DATE
<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p><b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31</p>			
		BY	DATE
		DESIGNED DEJ	10/27/06
		DRAWN DKS	10/27/06
		CHECKED RAE	10/27/06
		<p>Kimley-Horn and Associates, Inc.</p>	
DRAWING NO. UT2		WATERLINE RELOCATION DETAIL	
		SHEET OF 36 73	

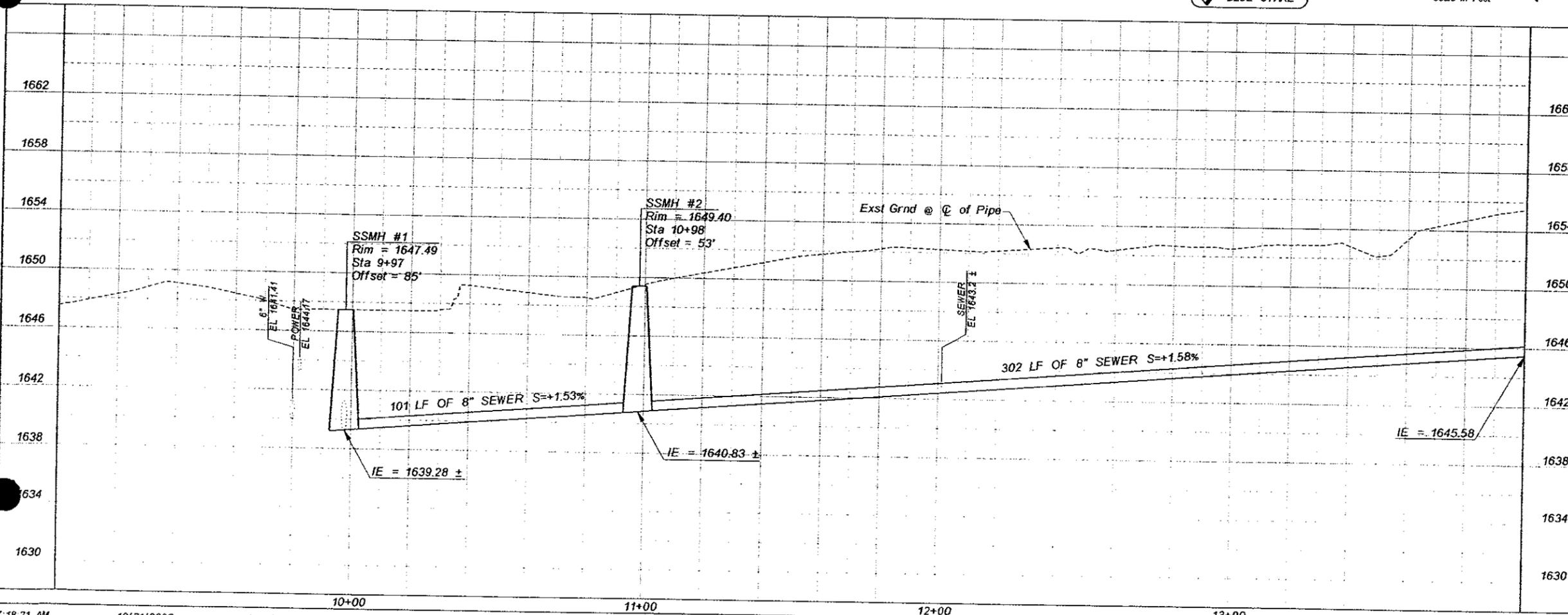


DKT NO  
219-34-009U

TWO WORKING DAYS  
BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE

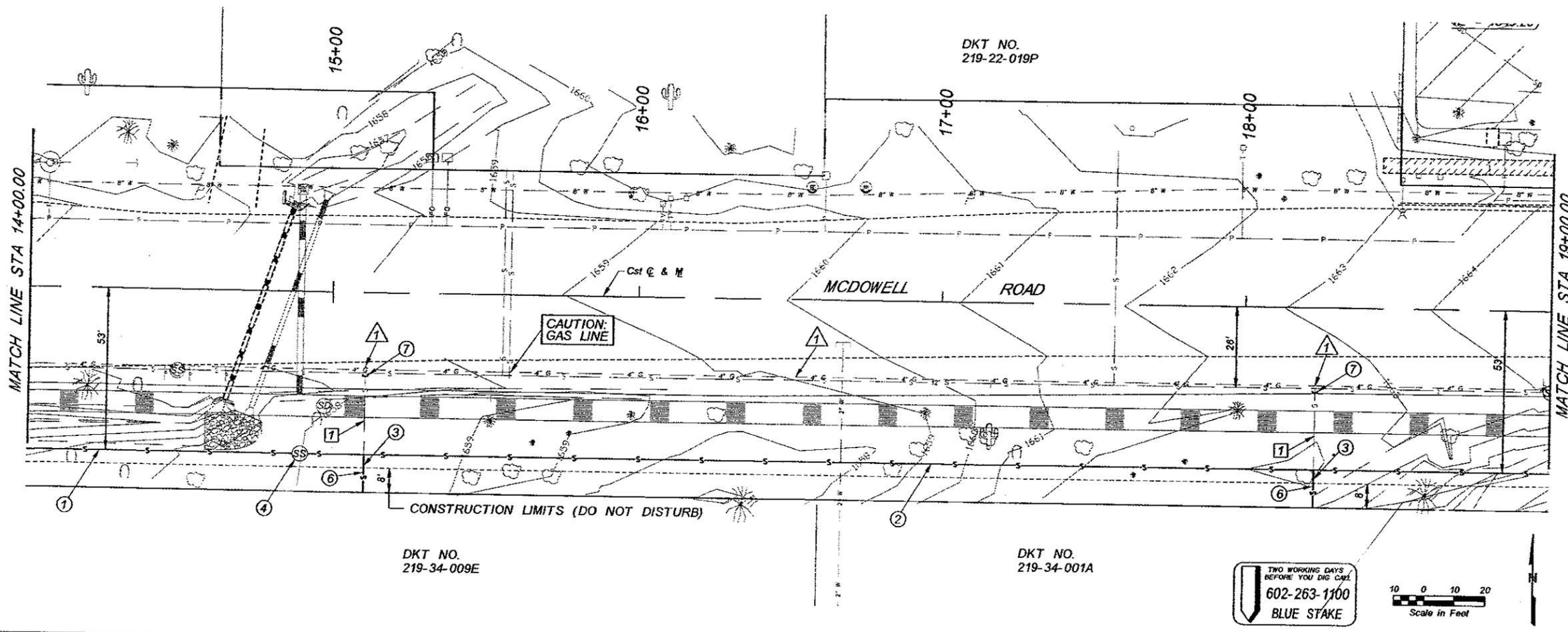


REMOVE			
①	REMOVE EXISTING 4" HOUSEHOLD SEWER CONNECTION (NPI)		27 LF
CONSTRUCT			
INSTALL NEW 8" PVC SANITARY SEWER			
NO.	STATION TO STATION	DIAMETER INCHES	LENGTH FEET
①	9+97 - 10+98	8	101
②	10+98 - 14+00	8	302
③	NOT USED		
④	NEW HOUSEHOLD SEWER CONNECTION TO 8" SANITARY SEWER, MAG DET 440-1		1 EA
INSTALL 5' DIA SANITARY SEWER MANHOLE			
NO.	STATION	BASE / SHAFT DETAIL	30" COVER
⑤	9+97 SSMH #1	420-1	424
⑥	10+98 SSMH #2	420-1	424
⑦	NOT USED		
⑧	CONTRACTOR TO VERIFY LOCATION, TYPE, AND SIZE OF HOUSEHOLD CONNECTION		
⑨	PLUG SANITARY SEWER HOUSEHOLD CONNECTION PER MAG STD DET 427		1 EA



- ① PROTECT IN PLACE (GAS LINE)
- \* FOR STORM DRAIN PLANS SEE DWG NOS. SD3 THROUGH SD8.
- \*\*FOR VEGETATION REMOVALS, SALVAGE AND RELOCATES SEE STORM DRAIN PLANS, DWGS NOS. SD3 THROUGH SD8.

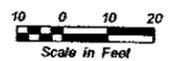
NO.	REVISION	BY	DATE
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2			
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<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
DESIGNED	DEJ	BY	DATE
DRAWN	DKS		10/27/06
CHECKED	RAE		10/27/06
DRAWING NO.	SS1	SANITARY SEWER PLAN AND PROFILE SHEET STA 10+00 TO STA 14+00	SHEET OF 37 73



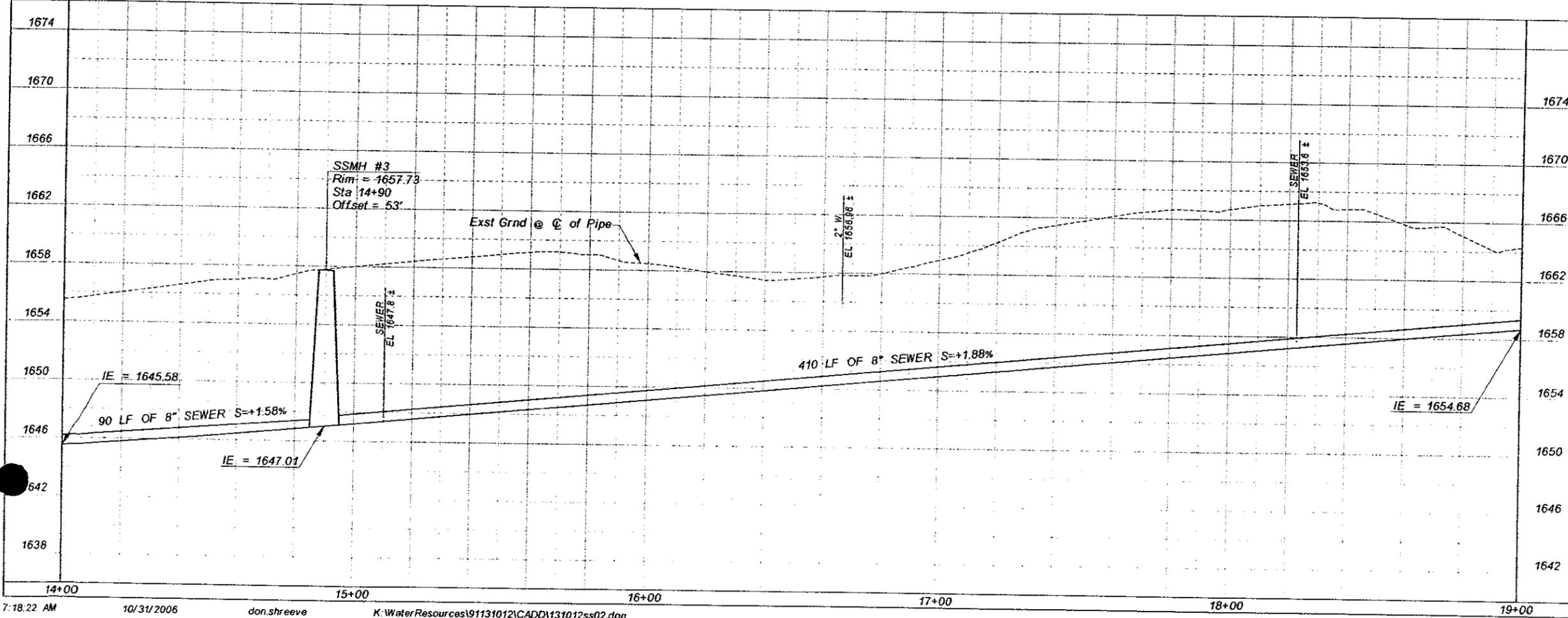
DKT NO.  
219-34-009E

DKT NO.  
219-34-001A

TWO WORKING DAYS  
BEFORE YOU DIG CALL  
602-263-1700  
BLUE STAKE



- REMOVE
- ① REMOVE EXISTING 4" HOUSEHOLD SEWER CONNECTION (NPI) 51 LF
- CONSTRUCT
- INSTALL NEW 8" PVC SANITARY SEWER
- | NO. | STATION TO STATION | DIAMETER INCHES | LENGTH FEET |
|-----|--------------------|-----------------|-------------|
| ①   | 14+00 - 14+90      | 8               | 90          |
| ②   | 14+90 - 19+00      | 8               | 410         |
- ③ NEW HOUSEHOLD SEWER CONNECTION TO 8" SANITARY SEWER MAG DET 440-1 2 EA
- INSTALL NEW 5' DIA SANITARY SEWER MANHOLE
- | NO. | STATION       | BASE / SHAFT DETAIL | 30" COVER |
|-----|---------------|---------------------|-----------|
| ④   | 14+90 SSMH #3 | 420-1               | 424       |
| ⑤   | NOT USED      |                     |           |
- ⑥ CONTRACTOR TO VERIFY LOCATION, TYPE, AND SIZE OF HOUSEHOLD CONNECTION
- ⑦ PLUG SANITARY SEWER HOUSEHOLD CONNECTION PER MAG STD DET 427 2 EA



- △ PROTECT IN PLACE (GAS LINE)
- \* FOR STORM DRAIN PLANS SEE DWG NOS. SD3 THROUGH SD8.
- \*\*FOR VEGETATION REMOVALS, SALVAGE AND RELOCATES SEE STORM DRAIN PLANS, DWGS NOS. SD3 THROUGH SD8.

NO.	REVISION	BY	DATE
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

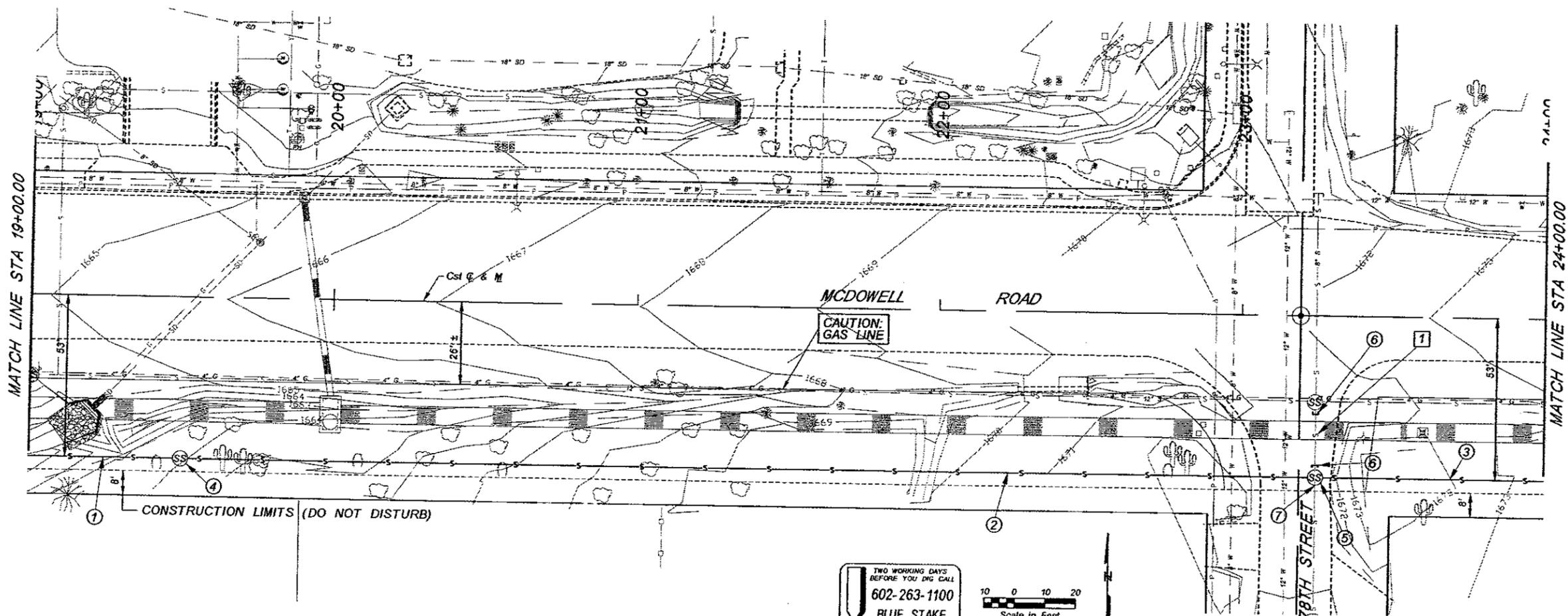
**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
PCN 420.03.31

DESIGNED	BY	DATE
DEJ		10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

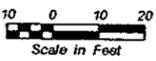
24767 ROBERT A EICHINGER

Kimley-Horn and Associates, Inc.

DRAWING NO. SS2 SANITARY SEWER PLAN AND PROFILE SHEET STA 14+00 TO STA 19+00 SHEET OF 38 73



TWO WORKING DAYS  
BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



□ REMOVE □

① REMOVE EXISTING 8" SANITARY SEWER (NPI)

○ CONSTRUCT ○

INSTALL NEW 8" PVC SANITARY SEWER

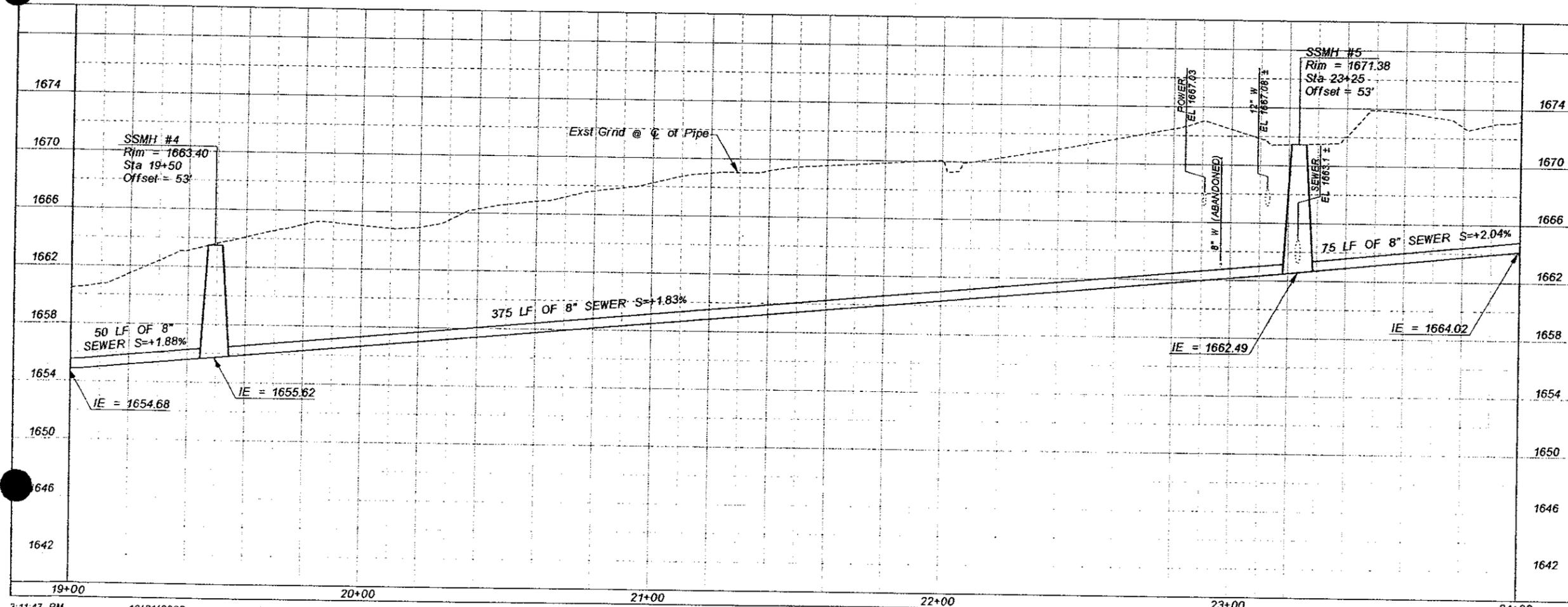
NO.	STATION	DIAMETER INCHES	LENGTH FEET
①	19+00 - 19+50	8	50
②	19+50 - 23+25	8	375
③	23+25 - 24+00	8	75

INSTALL NEW 5' DIA SANITARY SEWER MANHOLE

NO.	STATION	BASE / SHAFT DETAIL	30" COVER
④	19+50 SSMH #4	420-1	424
⑤	23+25 SSMH #5	420-1	424

⑥ PLUG SANITARY SEWER PER MAG STD DET 427 2 EA

⑦ CONNECT EXISTING 8" SANITARY SEWER TO NEW SANITARY SEWER MANHOLE (NPI)



\* FOR STORM DRAIN PLANS SEE DWG NOS. SD3 THROUGH SD8.

\*\*FOR VEGETATION REMOVALS, SALVAGE AND RELOCATES SEE STORM DRAIN PLANS, DWGS NOS. SD3 THROUGH SD8.

NO.	REVISION	BY	DATE
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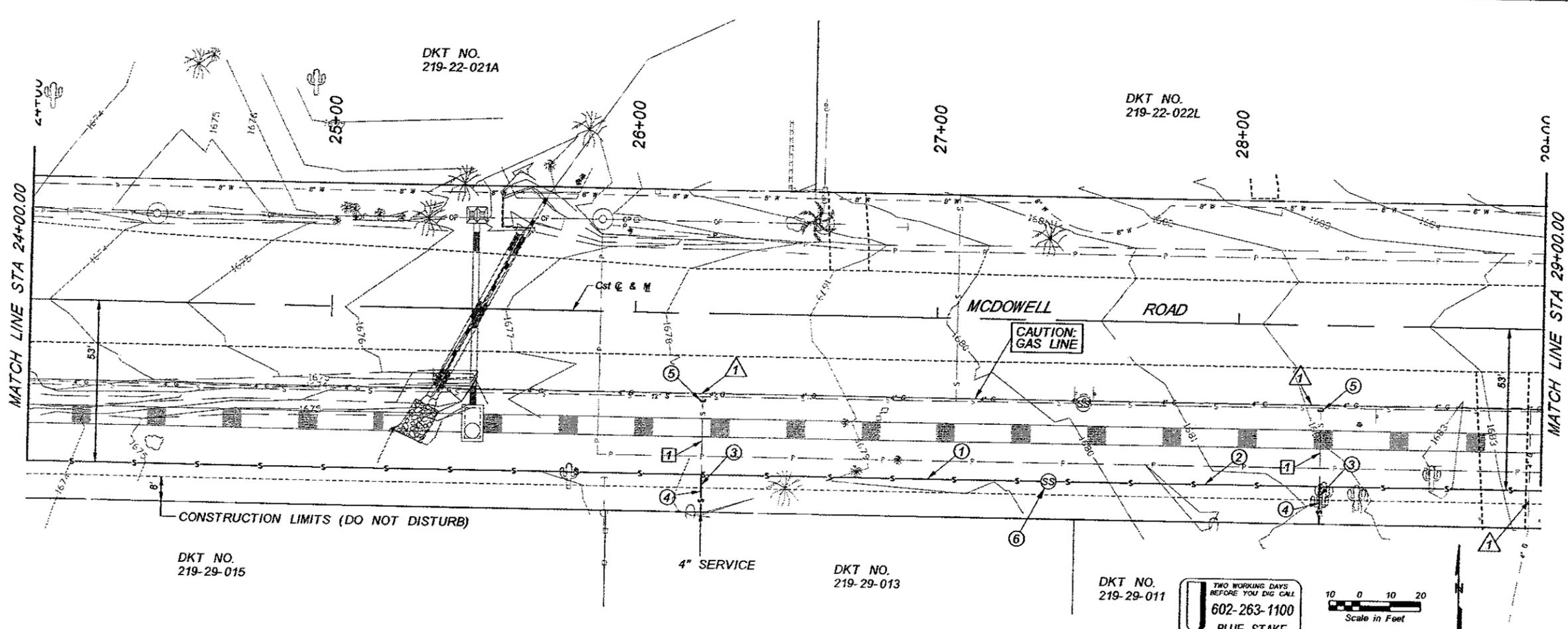
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

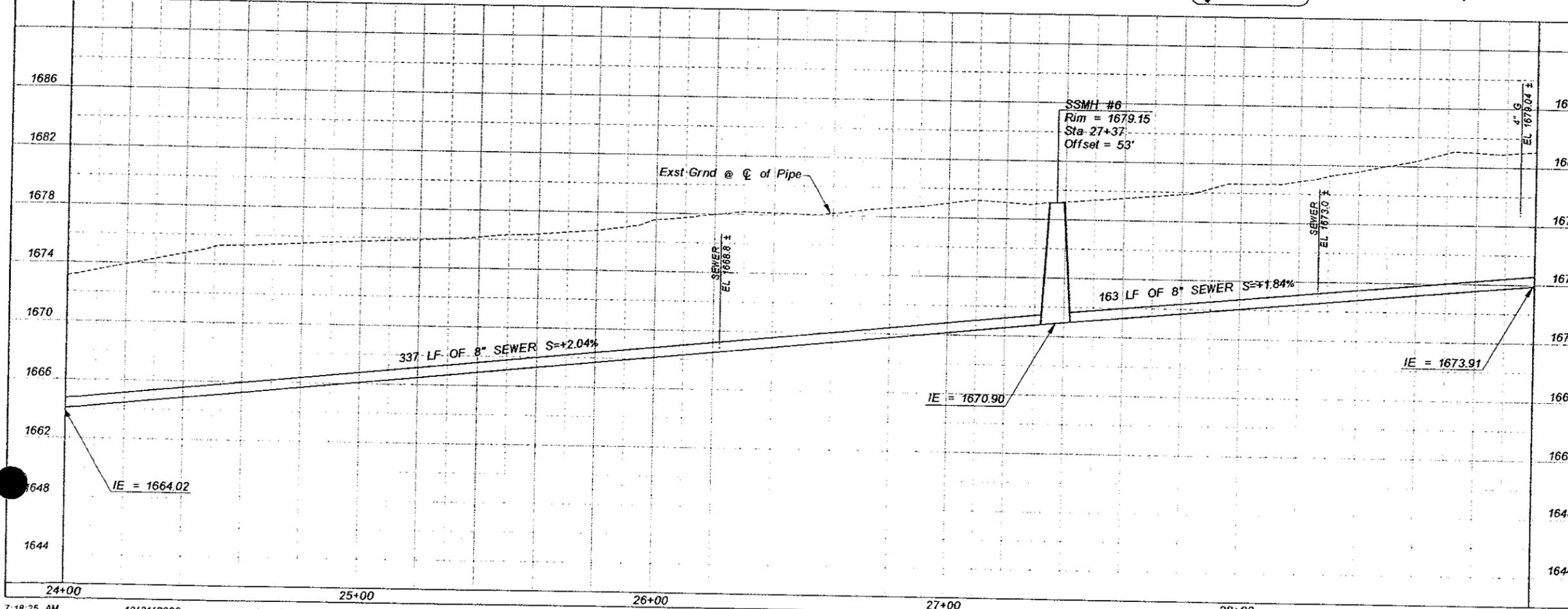
DESIGNED	DEJ	DATE
24167 ROBERT A EICHINGER	DEJ	10/27/06
CHECKED	RAE	10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO. SS3      SANITARY SEWER PLAN AND PROFILE SHEET STA 19+00 TO STA 24+00      SHEET OF 39 73



		REMOVE	
1	REMOVE EXISTING 4" HOUSEHOLD SEWER CONNECTION (NPI)		51 LF
		CONSTRUCT	
INSTALL NEW 8" PVC SANITARY SEWER			
NO.	STATION	DIAMETER INCHES	LENGTH FEET
1	24+00 - 27+37	8	337
2	27+37 - 29+00	8	163
3	NEW HOUSEHOLD SEWER CONNECTION TO 8" SANITARY SEWER, MAG DET 440-1		2 EA
4	CONTRACTOR TO VERIFY LOCATION, TYPE SIZE OF HOUSEHOLD CONNECTION		
5	PLUG SANITARY SEWER HOUSEHOLD CONNECTION PER MAG STD DET 427		2 EA
INSTALL NEW 5' DIA SANITARY SEWER MANHOLE			
NO.	STATION	BASE / SHAFT DETAIL	30" COVER
6	27+37 SSMH #6	420-1	424



1 PROTECT IN PLACE (GAS LINE)

\* FOR STORM DRAIN PLANS SEE DWG NOS. SD3 THROUGH SDB.

\*\*FOR VEGETATION REMOVALS, SALVAGE AND RELOCATES SEE STORM DRAIN PLANS, DWGS NOS. SD3 THROUGH SDB.

NO.	REVISION	BY	DATE
3			
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	BY	DATE
DEJ	DEJ	10/27/06
DRAWN	BY	DATE
DKS	DKS	10/27/06
CHECKED	BY	DATE
RAE	RAE	10/27/06

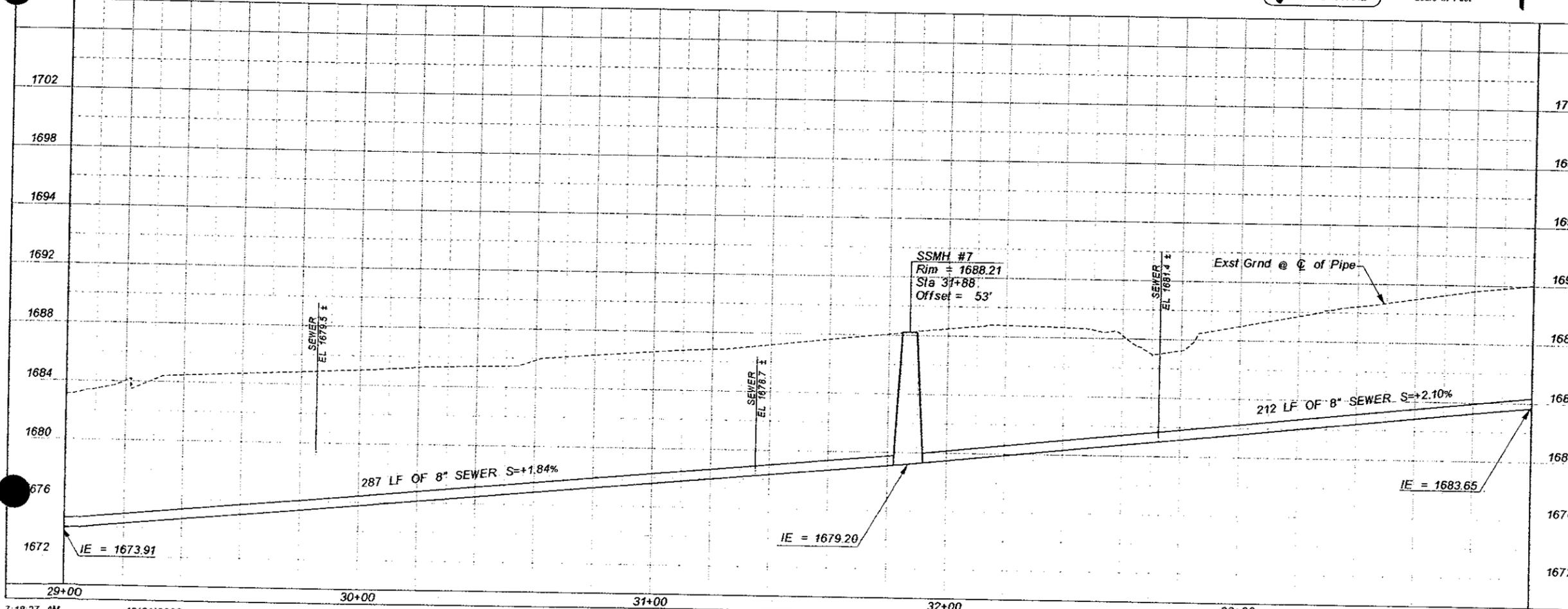
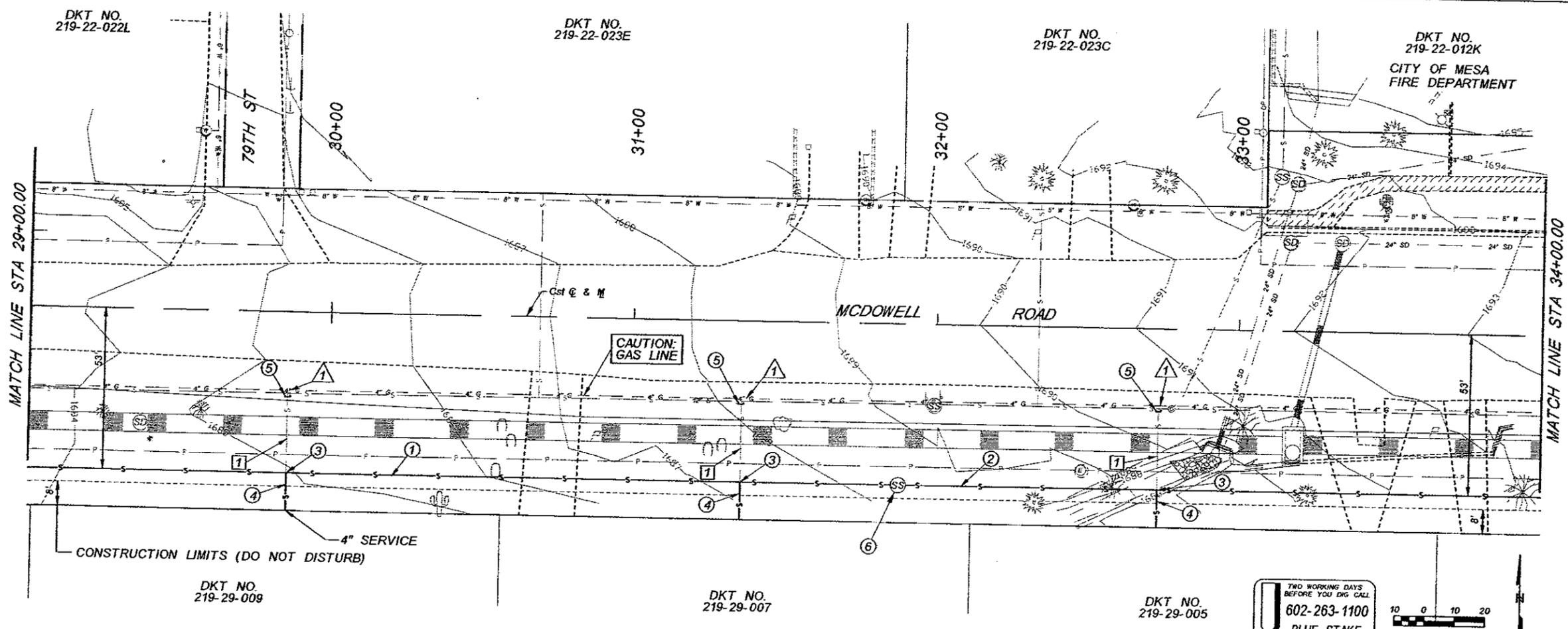
24767 ROBERT A EICHINGER

**Kimley-Horn and Associates, Inc.**

DRAWING NO. SS4

SANITARY SEWER PLAN AND PROFILE SHEET STA 24+00 TO STA 29+00

SHEET OF 40 73



<input type="checkbox"/> REMOVE <input type="checkbox"/>			
<input checked="" type="checkbox"/> REMOVE EXISTING 4" HOUSEHOLD SEWER CONNECTION (NPI) 79 LF			
<input type="checkbox"/> CONSTRUCT <input type="checkbox"/>			
INSTALL NEW 8" PVC SANITARY SEWER			
NO.	STATION	DIAMETER INCHES	LENGTH FEET
①	29+00 - 31+88	8	287
②	31+88 - 34+00	8	212
③ NEW HOUSEHOLD SEWER CONNECTION TO 8" SANITARY SEWER, MAG DET 440-1 3 EA			
④ CONTRACTOR TO VERIFY LOCATION, TYPE, AND SIZE OF HOUSEHOLD CONNECTION			
⑤ PLUG SANITARY SEWER HOUSEHOLD CONNECTION PER MAG STD DET 427 3 EA			
INSTALL NEW 5' DIA SANITARY SEWER MANHOLE			
NO.	STATION	BASE / SHAFT DETAIL	30" COVER
⑥	31+88 SSMH #7	420-1	424

PROTECT IN PLACE (GAS LINE)

\* FOR STORM DRAIN PLANS SEE DWG NOS. SD3 THROUGH SD8.

\*\*FOR VEGETATION REMOVALS, SALVAGE AND RELOCATES SEE STORM DRAIN PLANS, DWGS NOS. SD3 THROUGH SD8.

NO.	REVISION	BY	DATE
3			
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

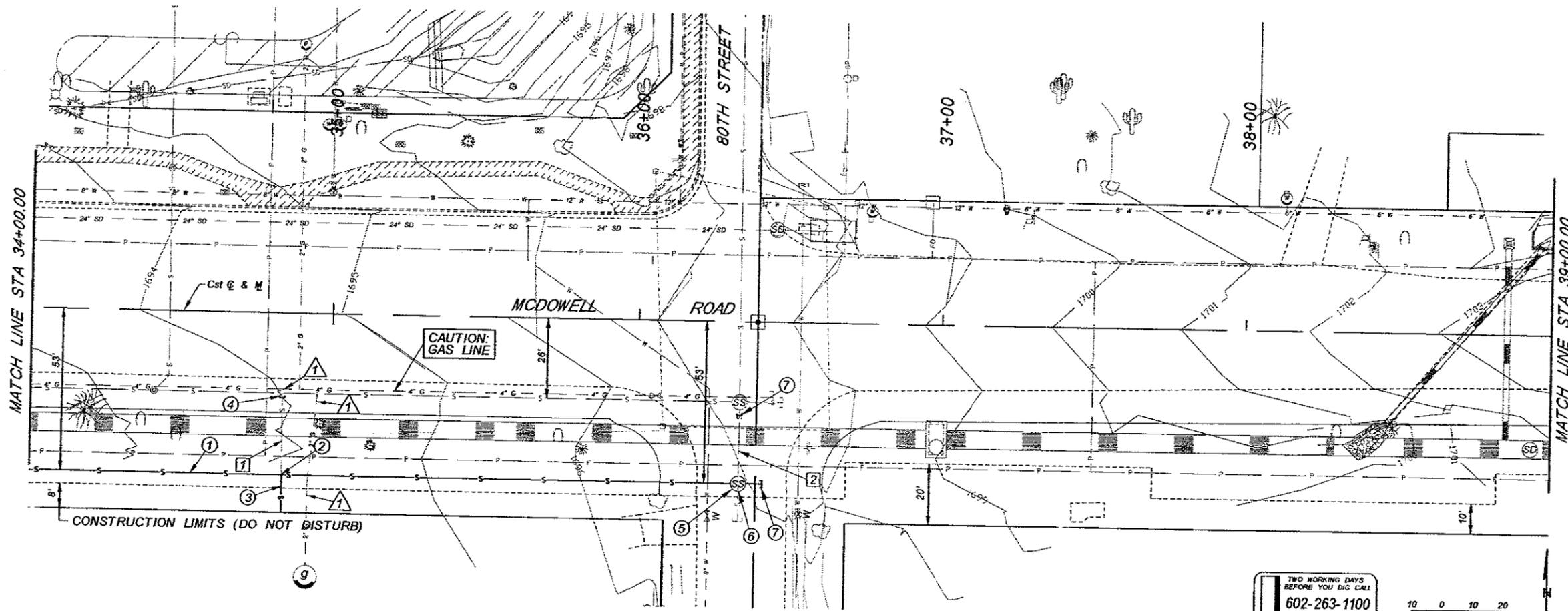
**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

DESIGNED	BY	DATE
DEJ		10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

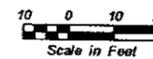
24761 ROBERT A. EICHINGER

Kimley-Horn and Associates, Inc.

DRAWING NO. SS5 SANITARY SEWER PLAN AND PROFILE SHEET STA 29+00 TO STA 34+00 SHEET OF 41 73



TWO WORKING DAYS  
BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



REMOVE

- ① REMOVE EXISTING 4" HOUSEHOLD SEWER CONNECTION (NPI) 27 LF
- ② REMOVE EXISTING 8" SANITARY SEWER (NPI)

CONSTRUCT

INSTALL NEW 8" PVC SANITARY SEWER

NO.	STATION	DIAMETER INCHES	LENGTH FEET
①	34+00 - 36+33	8	233
⑥	36+33 - 36+41	8	8

- NEW HOUSEHOLD SEWER CONNECTION TO 8" SANITARY SEWER, MAG DET 440-1 1 EA
- ③ CONTRACTOR TO VERIFY LOCATION, TYPE SIZE OF HOUSEHOLD CONNECTION
- ④ PLUG SANITARY SEWER HOUSEHOLD CONNECTION PER MAG STD DET 427 1 EA

INSTALL NEW 5' DIA SANITARY SEWER MANHOLE

NO.	STATION	BASE / SHAFT DETAIL	COVER
⑤	36+33 SSMH #8	420-1	424

- ⑥ CONNECT EXISTING 8" SANITARY SEWER TO NEW SANITARY SEWER MANHOLE (NPI)
- ⑦ PLUG SANITARY SEWER PER MAG STD DET 427 2 EA

⚠️ PROTECT IN PLACE (GAS LINE)

\* FOR STORM DRAIN PLANS SEE DWG NOS. SD3 THROUGH SD8.

\*\*FOR VEGETATION REMOVALS, SALVAGE AND RELOCATES SEE STORM DRAIN PLANS, DWGS NOS. SD3 THROUGH SD8.

NO.	REVISION	BY	DATE
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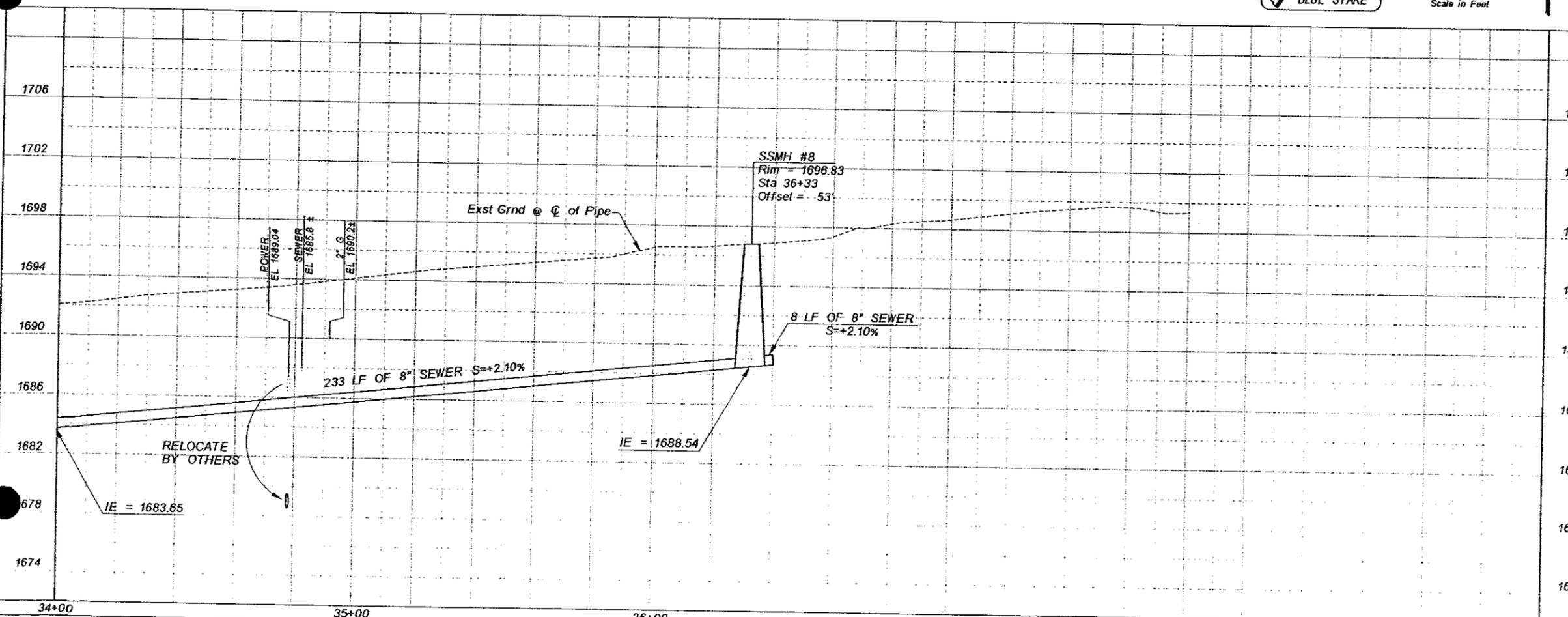
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**  
ENGINEERING DIVISION

MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
PCN 420.03.31

DESIGNED	BY	DATE
DEJ	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO. SS6 SANITARY SEWER PLAN AND PROFILE SHEET STA 34+00 TO STA 39+00 SHEET OF 42 73



**STRUCTURAL NOTES:**

**CODE**

1. COMPLY WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION-2002.

**FOUNDATIONS**

1. SOIL REPORT BY NINYO & MOORE, PROJECT NO. 601052001.
2. PLACE FOUNDATION CONCRETE ONLY ON CLEAN, FIRM, INSPECTED, BEARING MATERIAL. ALL FOUNDATION EXCAVATIONS MUST BE INSPECTED BY A QUALIFIED GEOTECHNICAL ENGINEER TO INSURE PROPER FOUNDATION BEARING.
3. REFER TO SOILS REPORT FOR SITE GRADING, SUBGRADE SOIL PREPARATION, AND FILL AND COMPACTION REQUIREMENTS.
4. FOUNDATIONS ARE DESIGNED FOR DRY CONDITIONS AND MUST REMAIN DRY DURING CONSTRUCTION.
5. EXPANSIVE NATIVE SOILS SHOULD NOT BE USED AS RETAINING WALL BACKFILL - SEE SOILS REPORT.

**CONCRETE**

1. CONCRETE QUALITY: CONFORM TO AASHTO DIVISION II - SECTION B.
2. CONCRETE REGULAR WEIGHT (144 pcf) WITH TYPE II CEMENT PER AASHTO M85 (ASTM C150), AGGREGATE PER AASHTO M6 & AASHTO M80 (ASTM C33), AND POTABLE WATER. A MAXIMUM OF 18% BY WEIGHT OF THE TOTAL CEMENTITIOUS MATERIALS MAY BE REPLACED BY FLY-ASH, PROVIDING THE FLY-ASH CONFORMS TO AASHTO M295 (ASTM C618, TYPE F).
3. AGGREGATE SIZE: 1" MINIMUM (SIZE NO. 5, 56 OR 57) FOR FOOTINGS AND OTHER MASS CONCRETE, AND 3/4" MINIMUM (SIZE NO. 6) FOR OTHER CONCRETE.
4. MINIMUM 28-DAY COMPRESSIVE STRENGTH: 3000 psi.
5. MAXIMUM SLUMP: 4 1/2".
6. MECHANICALLY VIBRATE ALL CONCRETE.
7. NO ADMIXTURES WITHOUT APPROVAL. ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED. CONCRETE SHALL NOT BE IN CONTACT WITH ALUMINUM.
8. WAIT 48 HOURS BETWEEN ADJACENT CONCRETE CASTINGS.
9. CURE CONCRETE MEMBERS WITH POLYETHYLENE FOR 5 DAYS OR WITH A CURING COMPOUND APPROVED BY THE ENGINEER.
10. SUBMIT MIX DESIGNS FOR REVIEW.
11. MAXIMUM FREE DROP OF ANY CONCRETE 6'-0"
12. DRYPACK SHALL BE ONE PART CEMENT AND 2-1/2 PARTS SAND WITH JUST ENOUGH WATER TO HYDRATE CEMENT AND FORM A BALL SHOWING MOISTURE ON THE SURFACE WHEN SQUEEZED. IT SHALL BE RAMMED IN TIGHT TO MAXIMUM DENSITY ATTAINABLE. MINIMUM 28-DAY STRENGTH TO BE 5000 psi. AS AN ALTERNATE TO DRYPACK, PROVIDE NON-SHRINK GROUT.
13. GROUT SHALL BE NON-METALLIC, NON-SHRINK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 psi IN 3 DAYS, MIXED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

**REINFORCING**

1. AASHTO M31 (ASTM A 615), GRADE 60, EXCEPT AS FOLLOWS:
  - A. FIELD BENT AND/OR WELDED BARS: ASTM A706.
2. REINFORCING BARS DEFORMED EXCEPT #2 BARS AND WELDED PLAIN WIRE FABRIC.
3. CONCRETE COVERAGE FOR REINFORCING BARS (TO FACE OF BAR INCLUDING STIRRUPS AND TIES) EXCEPT AS SHOWN OR NOTED:
  - A. UNFORMED CONCRETE IN CONTACT WITH EARTH: 3"
  - B. FORMED CONCRETE IN CONTACT WITH EARTH: 2"
  - C. WALL EXTERIOR FACE: 1-1/2"
  - D. WALL INTERIOR FACE: 1"
  - E. SLABS: 1"
  - F. BEAMS: 1-1/2"

**REINFORCING (CONT)**

4. LAP SPLICES IN CONCRETE: AASHTO CLASS "C" SPLICE.
  - A. EXCEPT AS OTHERWISE SHOWN OR NOTED, IN BEAMS AND SLABS NOT ON GRADE, SPLICE BOTTOM BARS OVER SUPPORTS AND TOP BARS AT MID-SPAN ONLY.
  - B. STAGGER ALL SPLICE LOCATIONS 1 LAP LENGTH MINIMUM. SEE DETAILS FOR VARIATION FROM MINIMUM.
5. SPLICE REINFORCING ONLY AT APPROVED LOCATIONS.
6. REINFORCING SPACING'S GIVEN ARE MAXIMUM ON CENTER AND ALL REINFORCING IS CONTINUOUS UNLESS OTHERWISE NOTED.
7. PROVIDE BENT CORNER REINFORCING TO MATCH AND LAP WITH HORIZONTAL REINFORCING AT CORNERS AND INTERSECTIONS OF WALLS, BEAMS AND FOOTINGS PER A.C.I. DETAILING MANUAL (SP-66).
8. DOWEL ALL VERTICAL REINFORCING TO FOUNDATIONS.
9. SECURELY TIE ALL REINFORCING EMBEDDED ITEMS IN POSITION BEFORE PLACING CONCRETE OR GROUT.
10. SUBMIT PLACING DRAWINGS PER A.C.I. DETAILING MANUAL (SP-66). FABRICATE AFTER ENGINEER'S REVIEW. INCLUDE ELEVATIONS SHOWING REINFORCING STEEL AT ALL CONCRETE WALLS AND FOOTINGS.
11. WELD REINFORCING BARS IN CONFORMANCE WITH AWS D1.4-92. USE LOW HYDROGEN ELECTRODES.
12. PLACE REINFORCING PER AASHTO, ACI 318-89 AND C.R.S.I. STANDARDS.

**STRUCTURAL STEEL, BOLTS AND WELDS**

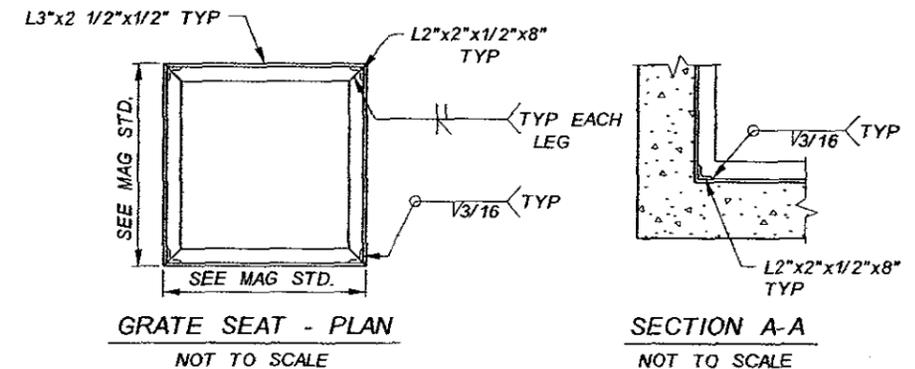
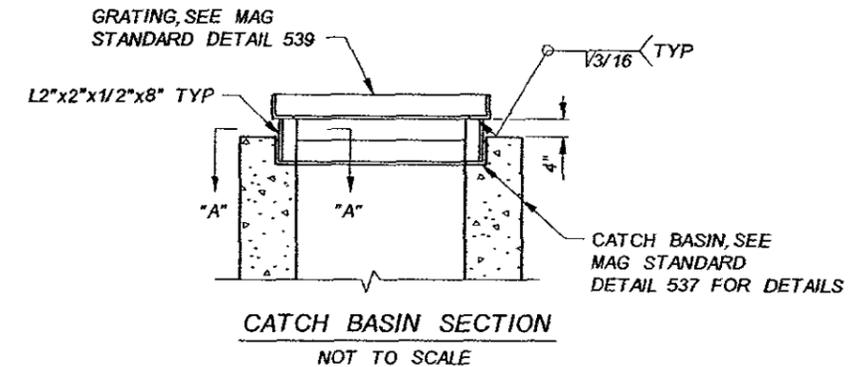
1. LATEST AISC AND AWS CODES AND HANDBOOKS APPLY.
2. ROLLED SECTIONS AND PLATES: ASTM A36 OR "DUAL CLASSIFICATION" ASTM A36/572, GRADE 50, Fy = 36 ksi MINIMUM, EXCEPT WHERE SPECIFICALLY NOTED ON THE DRAWINGS.
3. PIPES: ASTM A53, GRADE B, Fy = 35 ksi MINIMUM.
4. BOLTS AND PLAIN ANCHORS: ASTM A307.
5. WELDING RODS: E-70 SERIES LOW HYDROGEN. "JET" WELDING RODS (E7024) SHALL NOT BE USED FOR ANY STRUCTURAL STEEL WELDING.
6. ACCURATELY SAW OR FINISH ENDS TO A TRUE PLANE. TORCH CUT IS NOT ALLOWED.
7. COMPLY WITH AMERICAN WELDING SOCIETY CODES AND STANDARDS. ALL WELDERS SHALL HOLD VALID CERTIFICATES AND HAVE CURRENT EXPERIENCE IN THE TYPE OF WELD CALLED FOR. CERTIFICATES SHALL BE THOSE ISSUED BY AN ACCEPTED TESTING AGENCY AUTHORIZED BY AWS.
8. WELDS INDICATED WITH A SHOP WELD SYMBOL MAY BE MADE IN THE FIELD WITH APPROVAL OF THE STRUCTURAL ENGINEER.
9. SUBMIT SHOP DRAWINGS, FABRICATE AFTER ENGINEER'S REVIEW.
10. ALL STRUCTURAL SHOP WELDING SHALL BE DONE IN A CITY APPROVED FABRICATOR'S SHOP.
11. ALL STEEL PARTS SHALL BE GIVEN ONE SHOP COAT OF NO. 1 PAINT AND TWO FIELD COATS OF NO. 10 PAINT PER M.A.G. STD. SECTION 790.

**SUPPLEMENTARY NOTES**

1. VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. VERIFY IN FIELD ALL EXISTING CONDITIONS SHOWN ON DRAWINGS.
3. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS WITH APPROPRIATE TRADES, DRAWINGS.
4. PROVIDE ALL NECESSARY TEMPORARY BRACING, SHORING, GUYING, OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.

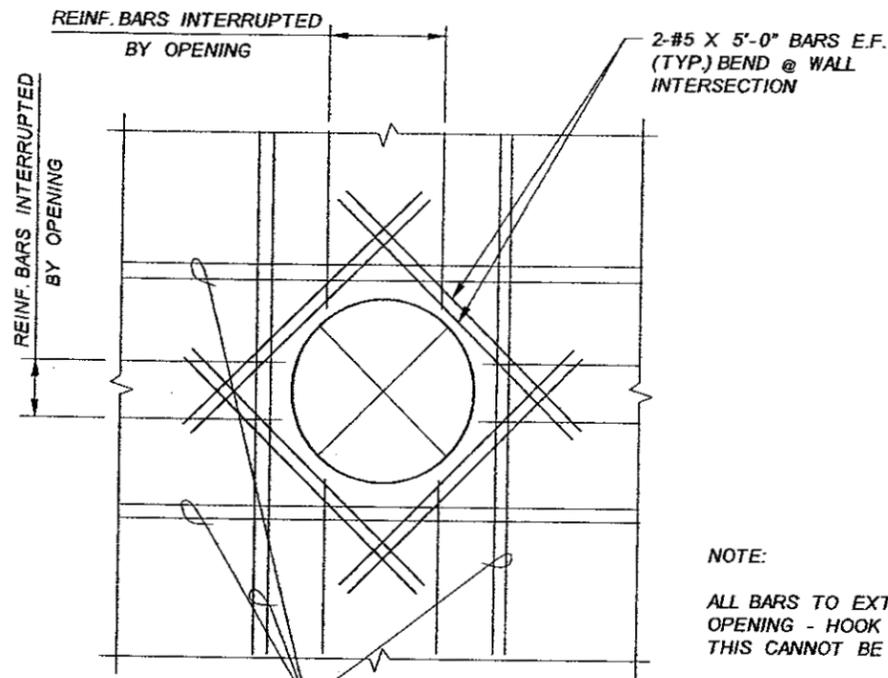
**SUPPLEMENTARY NOTES (CONT)**

5. THE COST OF ADDITIONAL DESIGN WORK DUE TO ERRORS OR OMISSIONS IN CONSTRUCTION SHALL BE DONE BY THE CONTRACTOR.
6. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF AN ENGINEER REGISTERED IN ARIZONA IF THIS ENGINEERING DESIGN REQUIRES SPECIAL STRUCTURAL INSPECTION, THEY SHALL BE RESPONSIBLE FOR THE INSPECTION.
7. DETAILS ON THE STRUCTURAL DRAWINGS ARE TYPICAL. VERIFY ALL DIMENSIONS WITH THE CIVIL DRAWINGS.



**CATCH BASIN RAISED GRATE DETAILS**  
NOT TO SCALE

3			
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1			
NO.	REVISION	BY	DATE
<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p><b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31</p>			
		DESIGNED	SMN
		DRAWN	MSK
		CHECKED	KJK/DJL
		DATE	10/27/06
		DATE	10/27/06
		DATE	10/27/06
DRAWING NO.	ST1	STRUCTURAL NOTES	SHEET OF 43 73

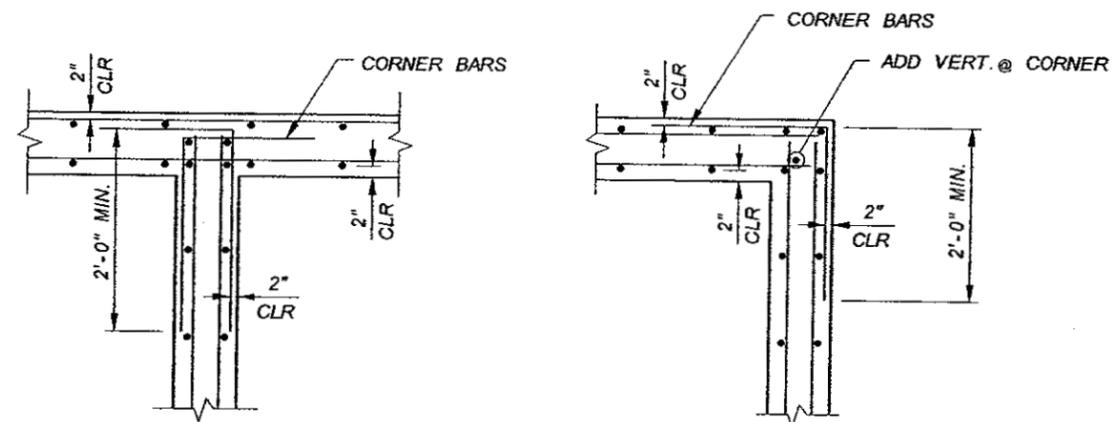


NOTE:  
NO ADD'L REINF. REQ'D. IF OPENINGS ARE LESS THAN 10"

PROVIDE ADDITIONAL REINF. BARS HAVING THE EQUIVALENT CROSS SECTIONAL AREA AND LENGTH OF REINF. BARS INTERRUPTED BY OPENING. CONCENTRATE HALF EACH SIDE OF OPENING AT 3" (MAX.) SPACING. WHERE WALL OCCURS @ EDGES, CONCENTRATE ALL INTERRUPTED BARS AT SIDE OF OPENING OPPOSITE WALL.

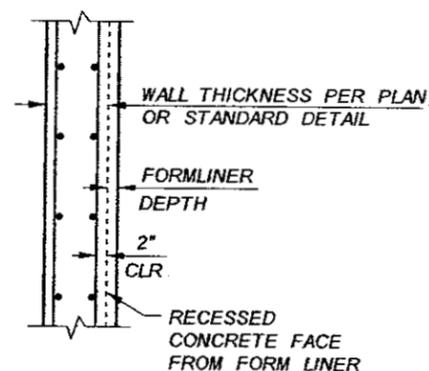
TYP. REINFORCING AT OPENINGS  
NOT TO SCALE

NOTE:  
ALL BARS TO EXTEND 2'-6" PAST OPENING - HOOK BARS WHERE THIS CANNOT BE OBTAINED.

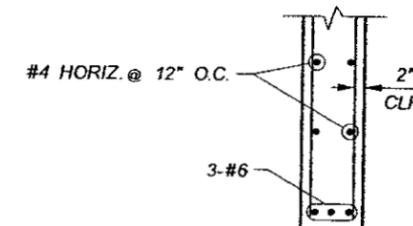


AT INTERSECTION - PLAN

AT CORNER - PLAN



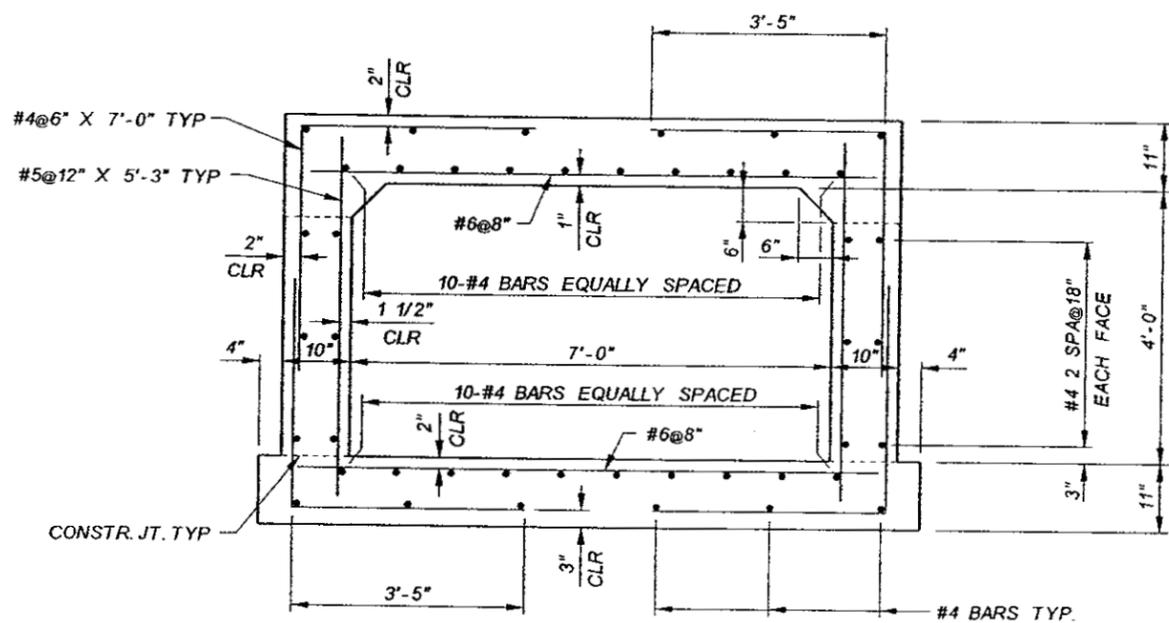
TYPICAL CLEAR COVER W/FORMLINER  
NOT TO SCALE



NOTE:  
SEE PLANS FOR TYPICAL WALL REINFORCING

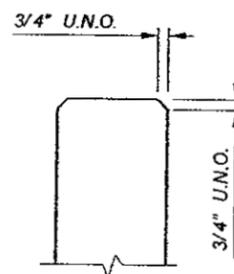
OPENING - ELEVATION

AT TOP, BOTTOM & SIDE OF OPENING  
ALSO AT TOP & FREE ENDS OF WALL



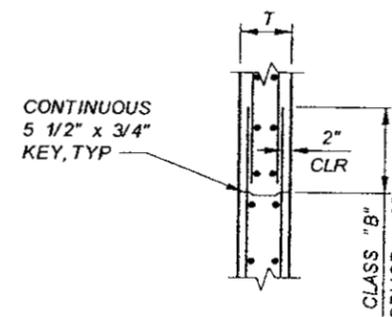
TYPICAL SECTION - 7'X4' RCBC  
SCALE: 1/2" = 1'-0"

TYPICAL CONCRTE WALL DETAILS  
NOT TO SCALE



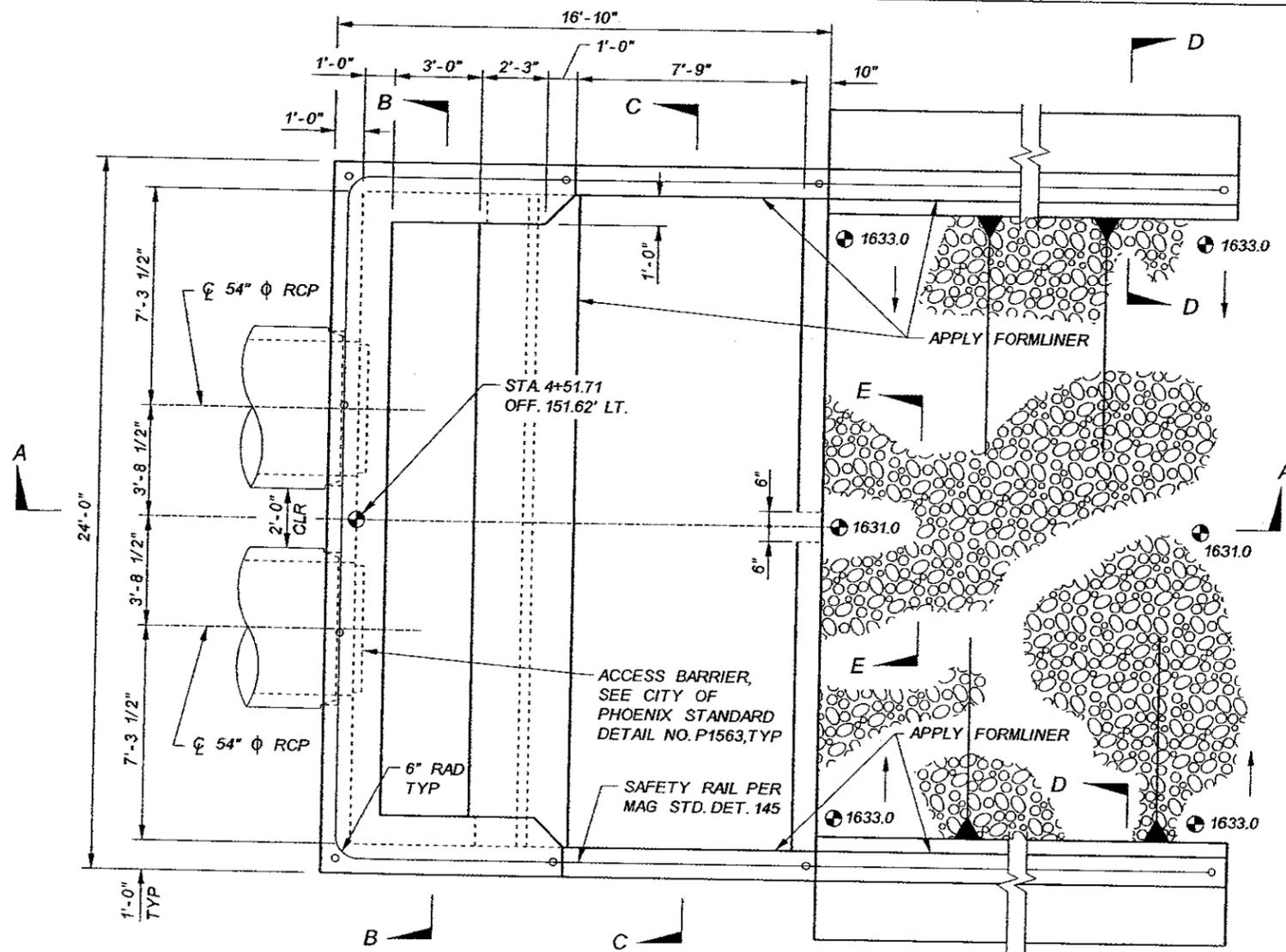
NOTE:  
CHAMFER ALL STRUCTURAL PIPE INLET AND OUTLET EXPOSED EDGES 3/4" U.N.O.

CHAMFER DETAIL  
NOT TO SCALE

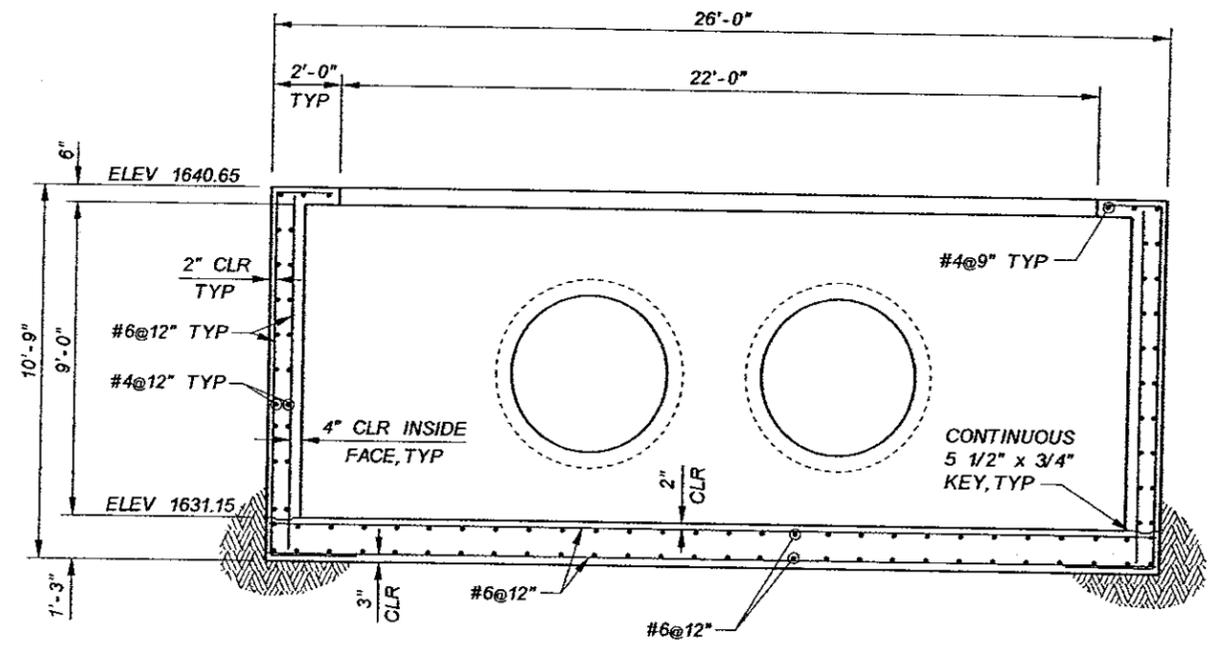


TYPICAL CONSTRUCTION JOINT  
NOT TO SCALE

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> <b>ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> <b>PCN 420.03.31</b>			
		BY	DATE
		DESIGNED SMN	10/27/06
		DRAWN MSK	10/27/06
		CHECKED KJK/DJL	10/27/06
		 <b>Kimley-Horn and Associates, Inc.</b>	
DRAWING NO. ST2		TYPICAL DETAILS	
		SHEET OF 44 73	

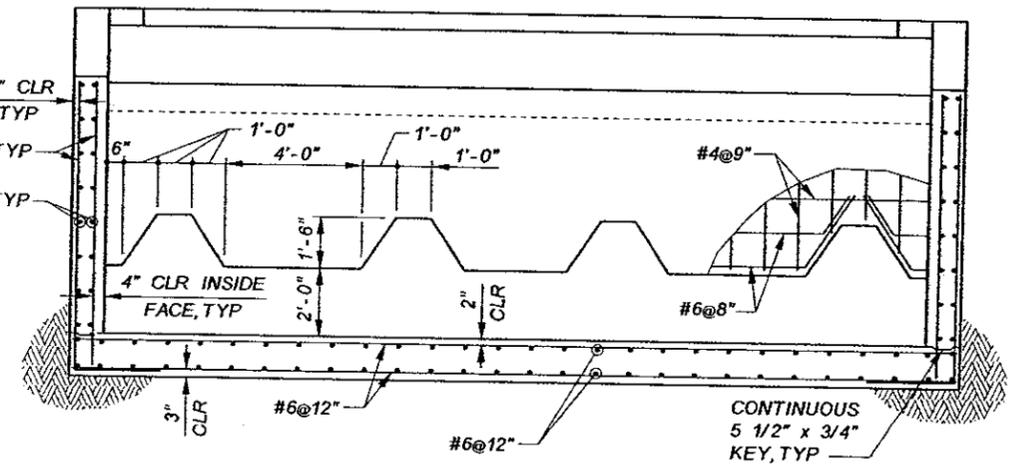


PLAN  
SCALE = 3/8" = 1'-0"



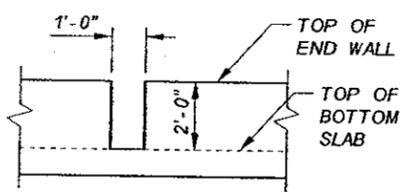
SECTION B-B  
SCALE = 3/8" = 1'-0"

NOTE: SAFETY RAIL NOT SHOWN.

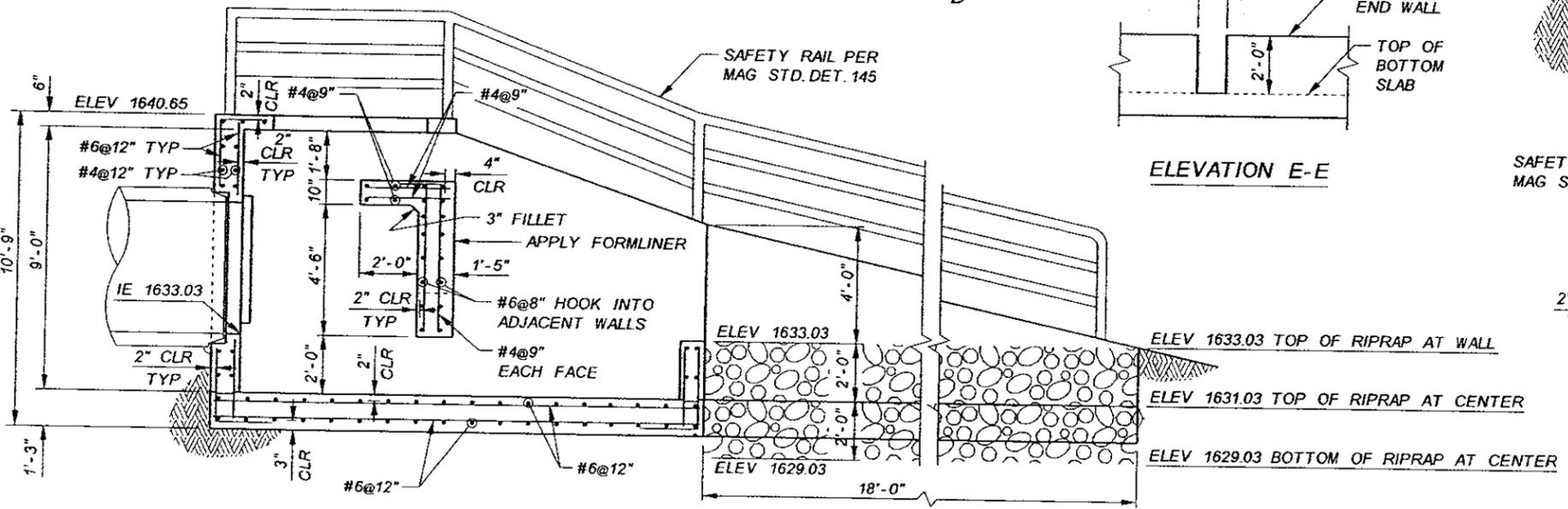


SECTION C-C  
SCALE = 3/8" = 1'-0"

NOTE: SAFETY RAIL NOT SHOWN.

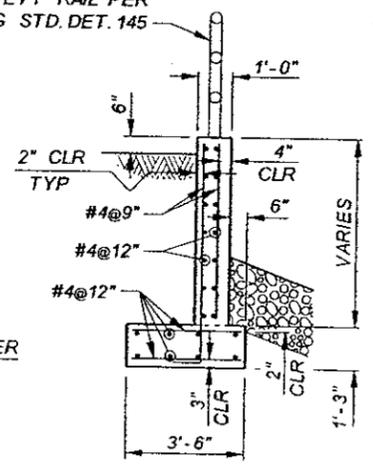


ELEVATION E-E



SECTION A-A  
SCALE = 3/8" = 1'-0"

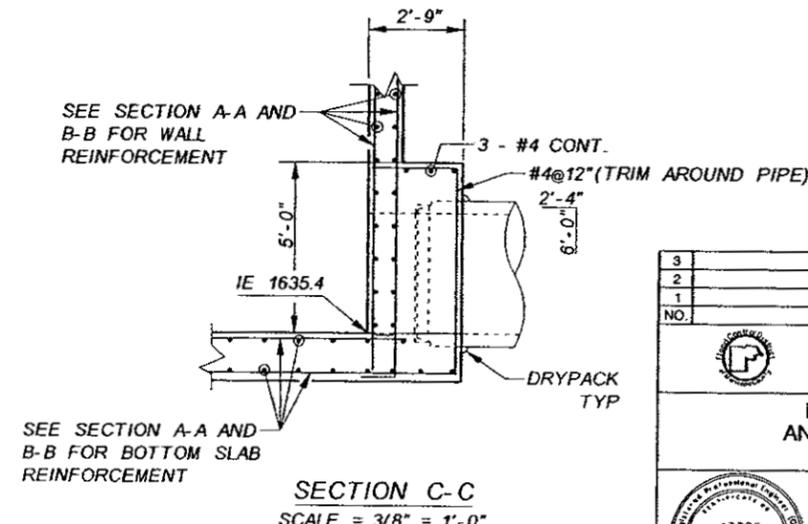
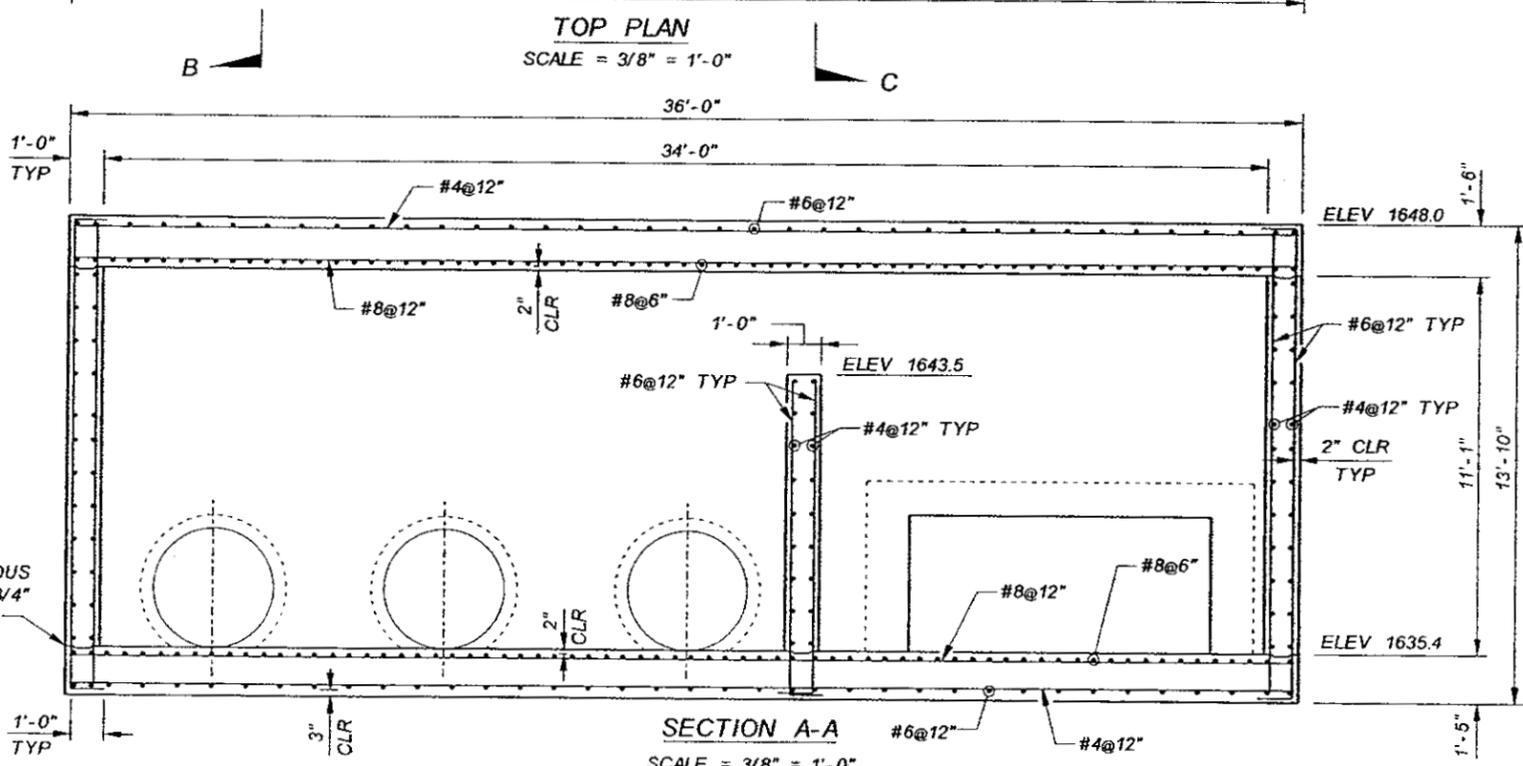
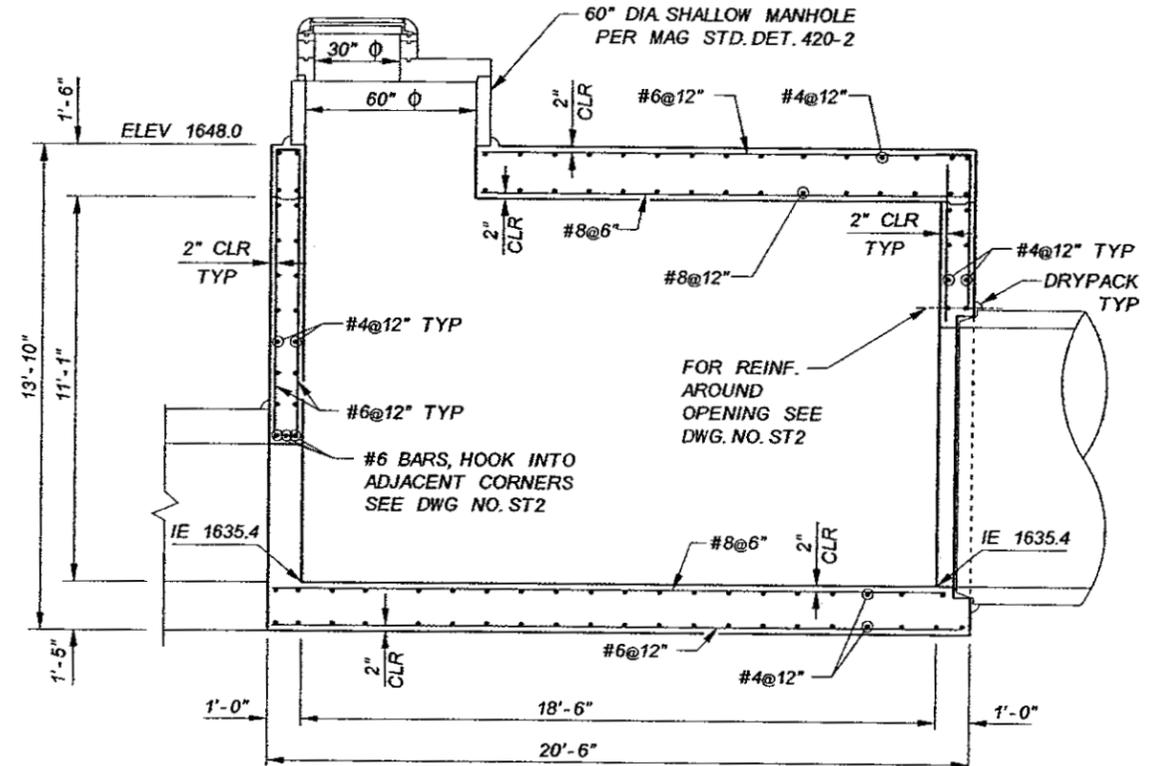
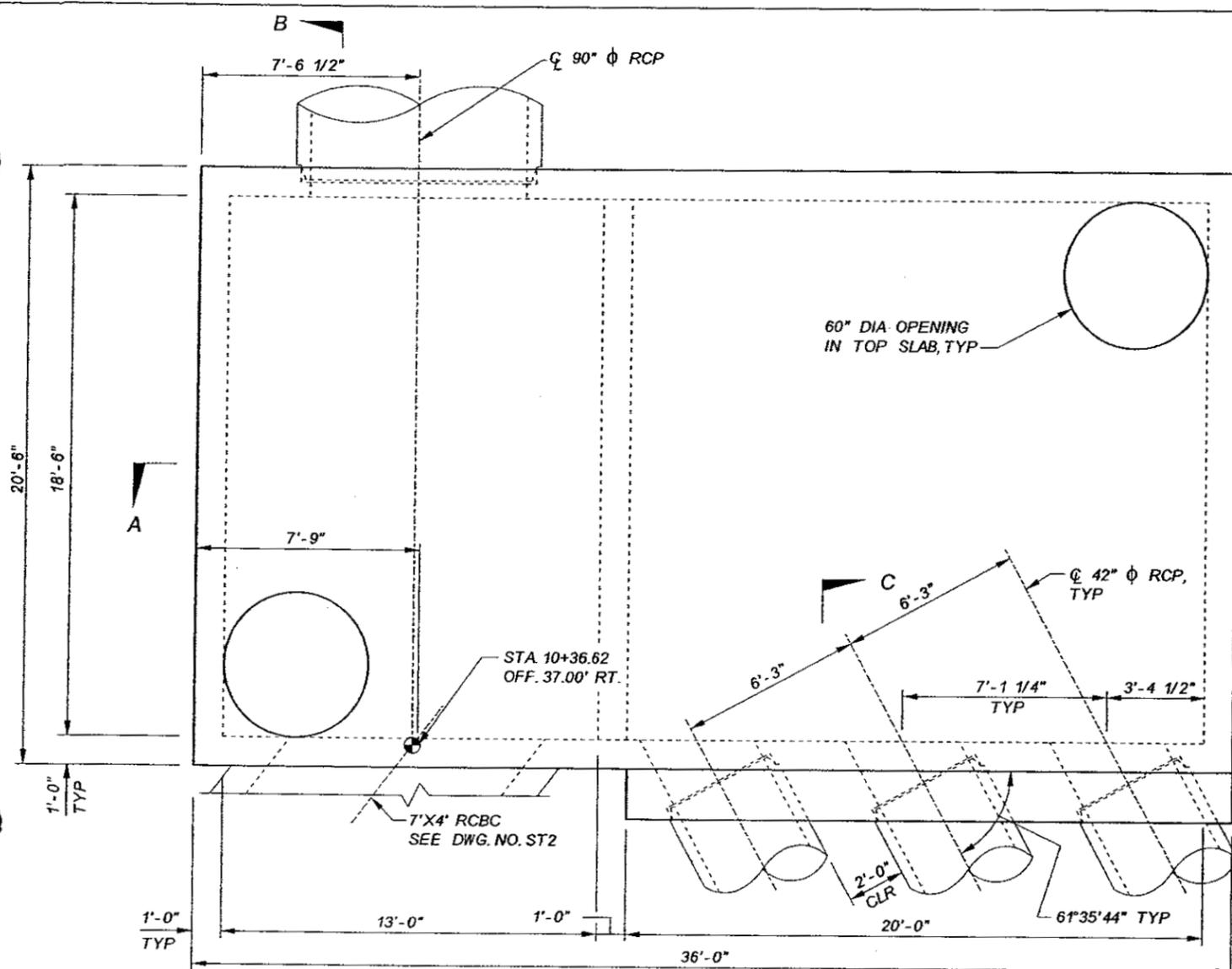
NOTE: FORMLINER AND CONCRETE COLOR SHALL MATCH REQUIREMENTS SPECIFIED IN THE SPECIAL PROVISIONS.



SECTION D-D  
SCALE = 3/8" = 1'-0"

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NO.	REVISION	BY	DATE
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
DESIGNED	SMN	BY	DATE
DRAWN	MSK		10/27/06
CHECKED	KJK/DJL		10/27/06
DRAWING NO. ST3		STRUCTURE #2	
		SHEET OF 45 73	





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NO.	REVISION	BY	DATE
	 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>		
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
	DESIGNED	SMN	DATE 10/27/06
	DRAWN	MSK	DATE 10/27/06
	CHECKED	KJK/D.J.L.	DATE 10/27/06
			BY DATE
DRAWING NO. ST5	STRUCTURE #4		SHEET OF 47 73

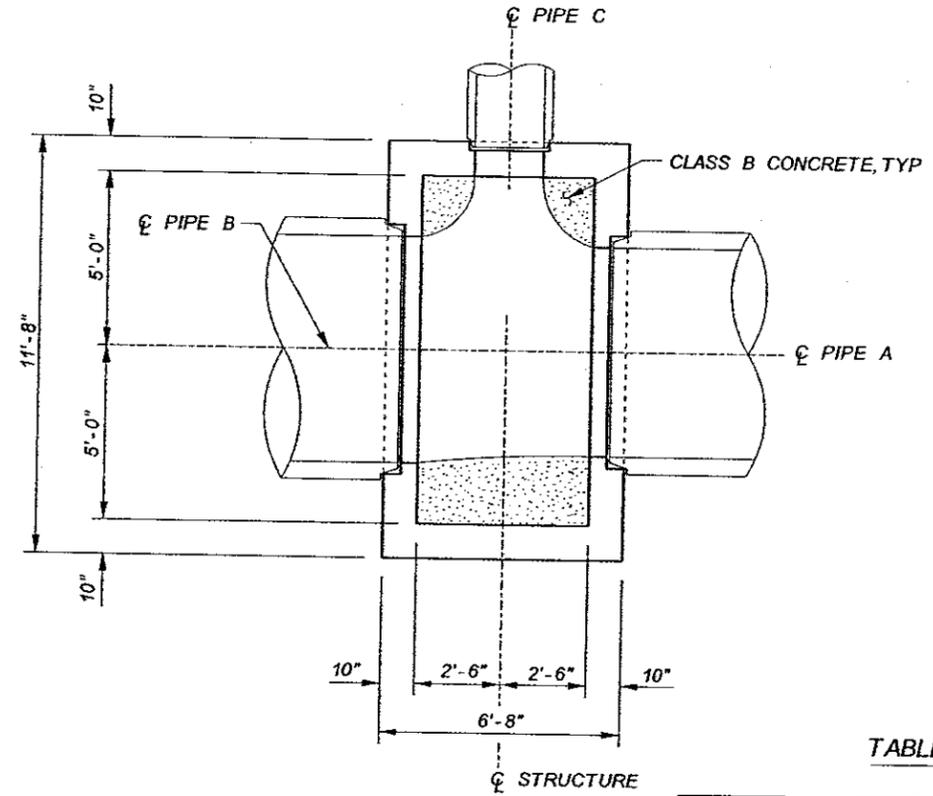
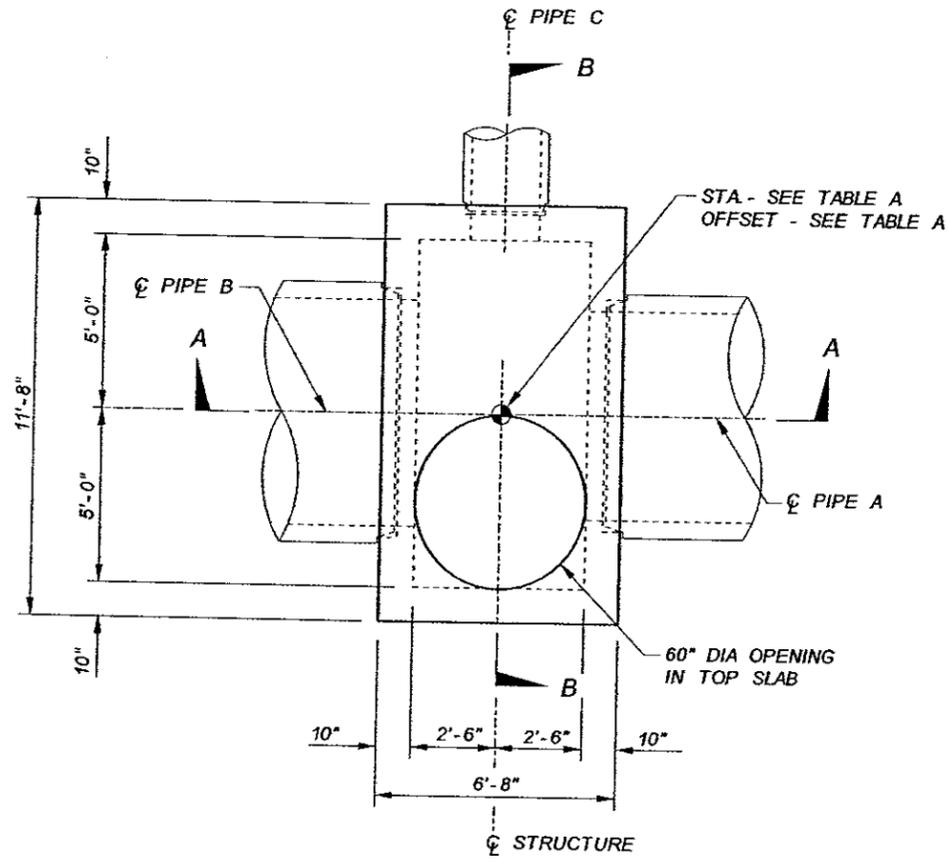


TABLE A: STATION, OFFSETS, AND ELEVATIONS

STRUCTURE	STATION	OFFSET	IE A	IE B	IE C	ELEV A	ELEV B
5	19+99.50	37.00 RT	1652.7	1650.9	1653.2	1661.9	1650.9
6	25+47.00	37.00 RT	1664.5	1662.5	1662.5	1673.5	1662.5
7	33+18.50	37.00 RT	1679.8	1677.8	1684.2	1688.8	1677.8
8	36+98.50	37.00 RT	1687.5	1685.5	N/A	1696.5	1685.5
9	52+61.70	37.00 RT	1719.9	1717.9	1719.9	1728.9	1717.9
10	57+00.00	37.00 RT	1730.2	1728.2	1730.2	1739.2	1728.2

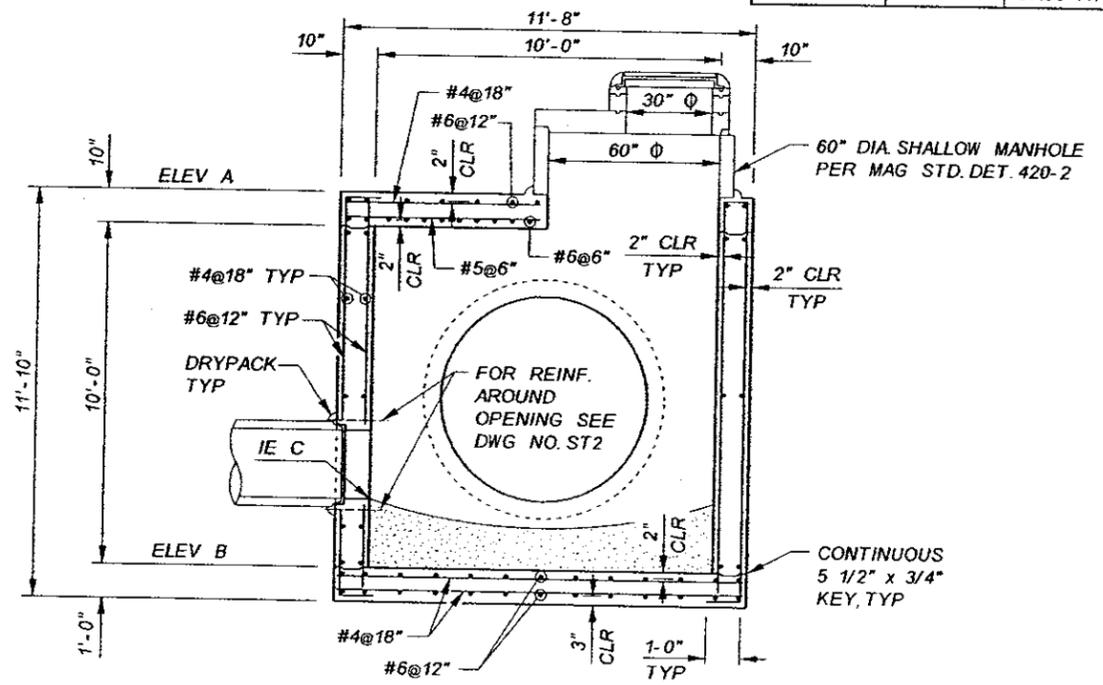
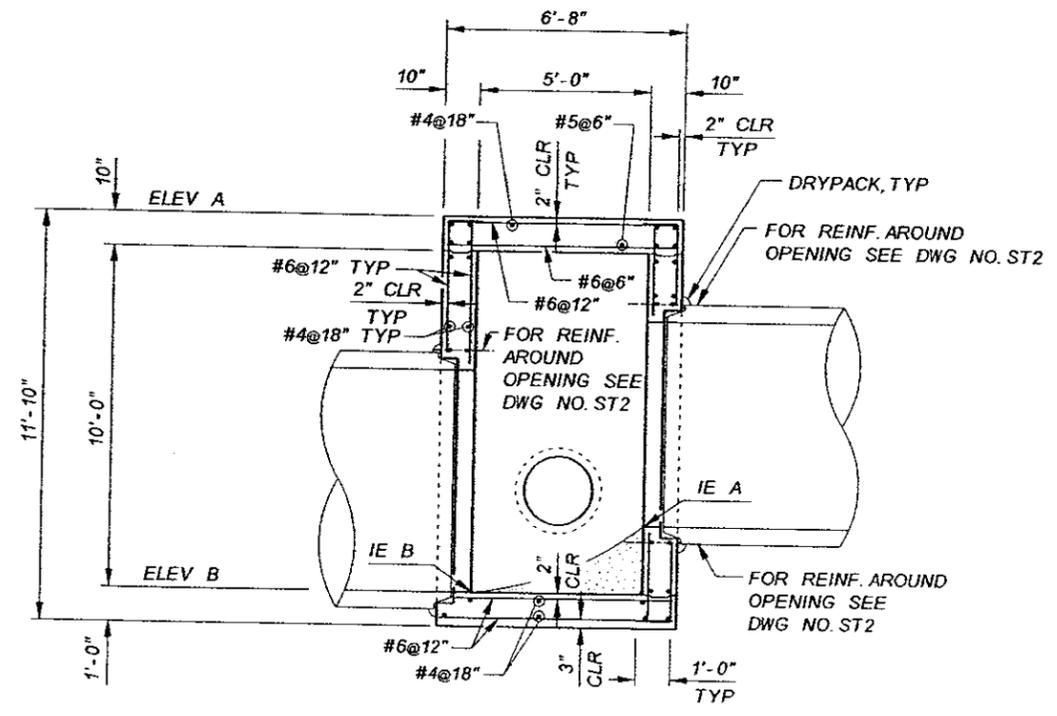
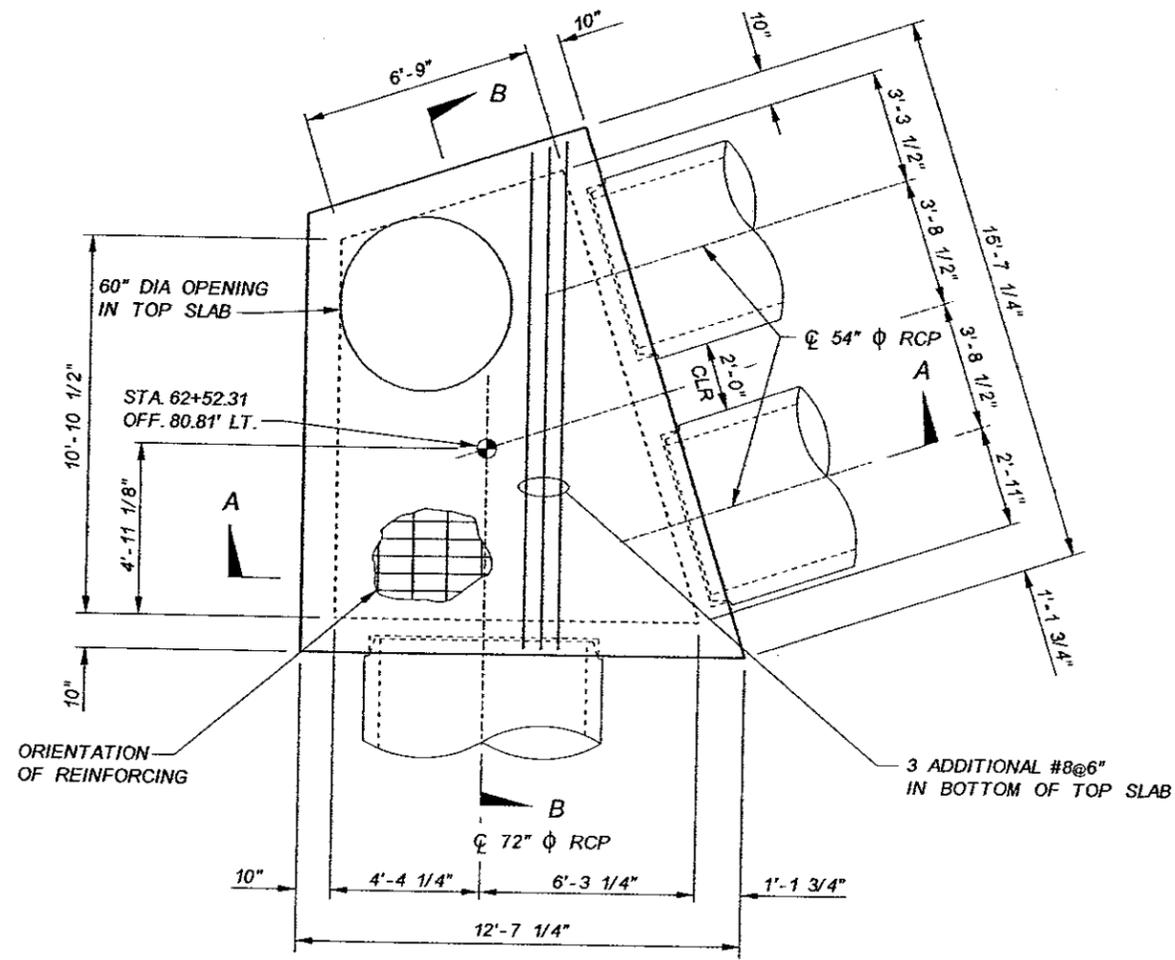


TABLE B: PIPE DIAMETERS

STRUCTURE	PIPE A DIA	PIPE B DIA	PIPE C DIA
5	78"	78"	24"
6	78"	78"	24"
7	78"	78"	24"
8	78"	78"	N/A
9	72"	72"	24"
10	72"	72"	24"

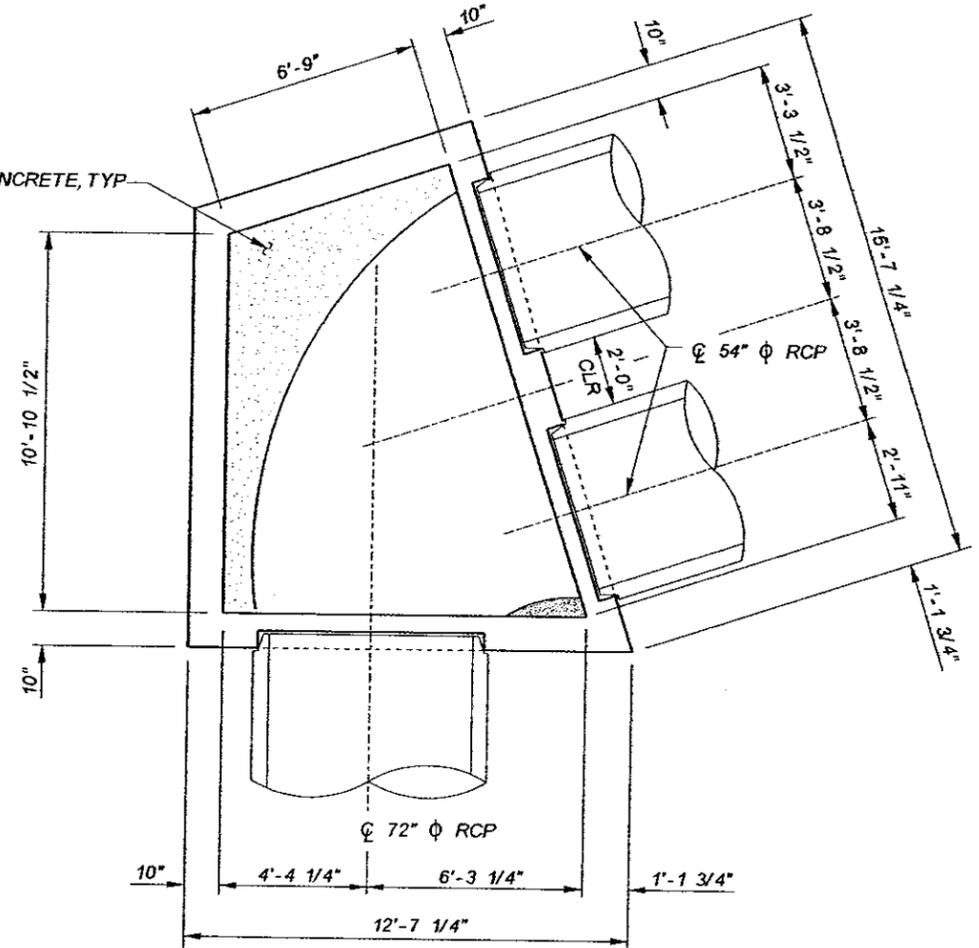
NO.	REVISION	BY	DATE
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<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b></p> <p>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</p>			
DESIGNED		SMN	10/27/06
DRAWN		MSK	10/27/06
CHECKED		KJK/DJL	10/27/06
DRAWING NO.		ST6	
STRUCTURES		#5 TO #10	
SHEET OF		48	73



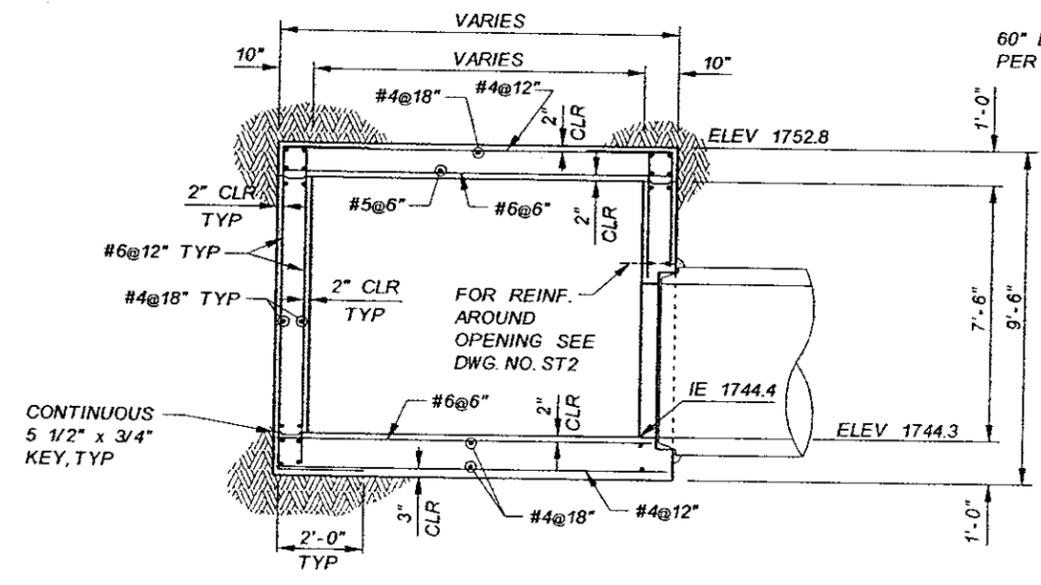


TOP PLAN  
NTS

CLASS B CONCRETE, TYP

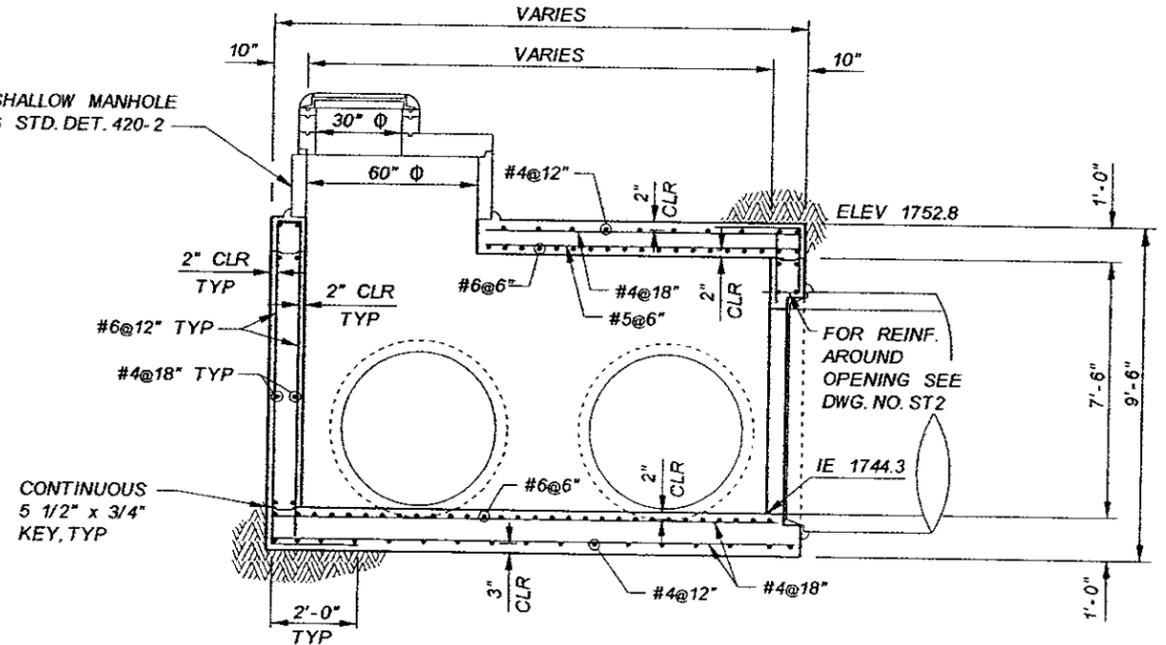


BOTTOM PLAN  
NTS



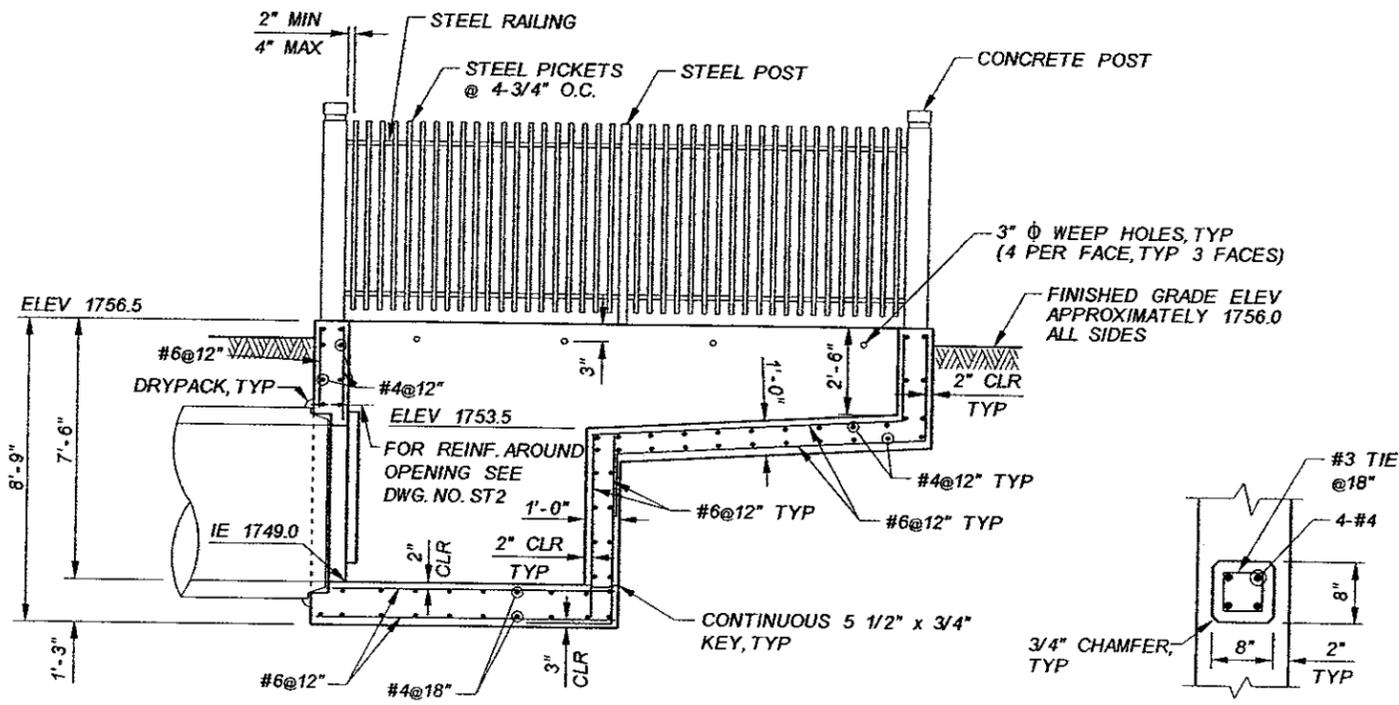
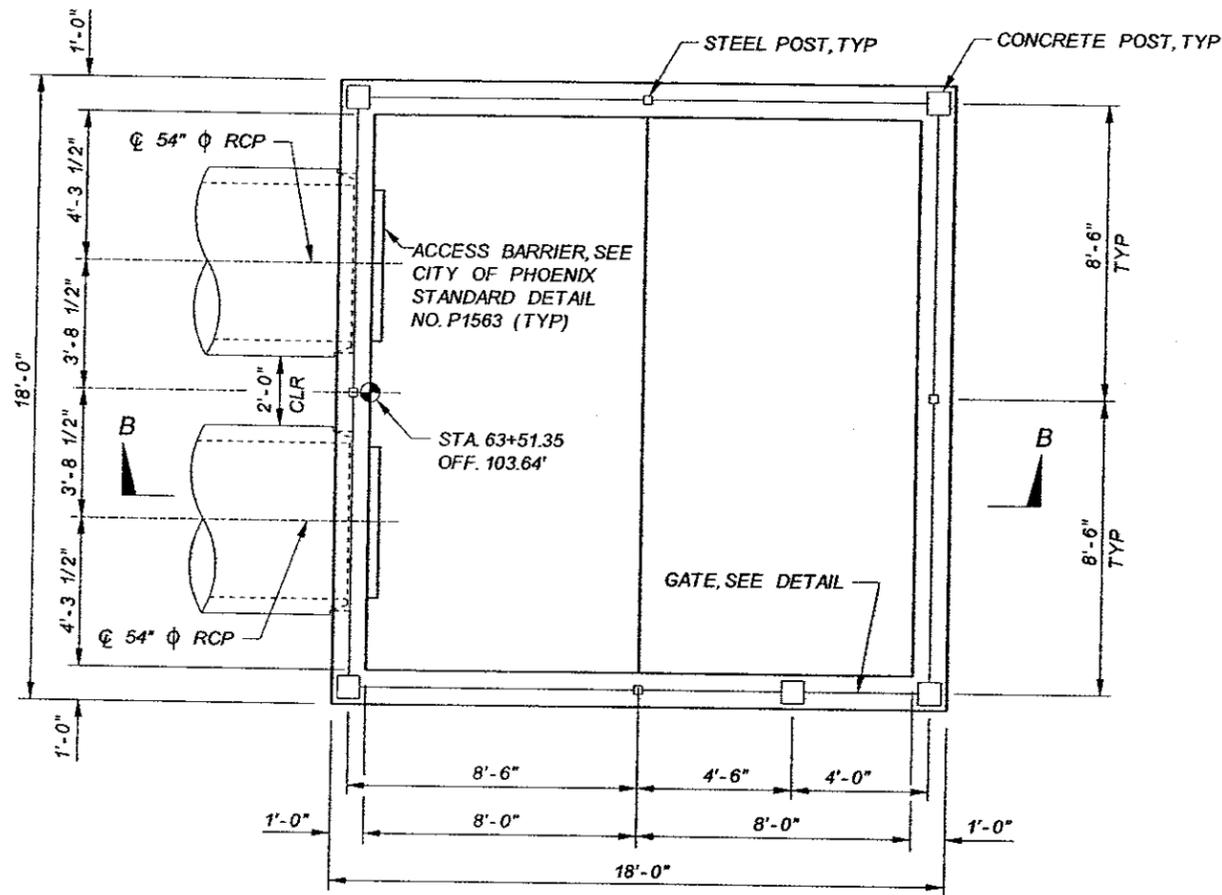
SECTION A-A  
NTS

NOTE: MANHOLE RISER NOT SHOWN FOR CLARITY

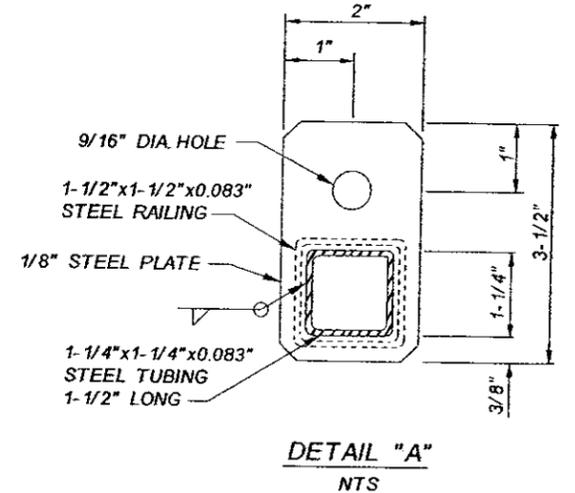
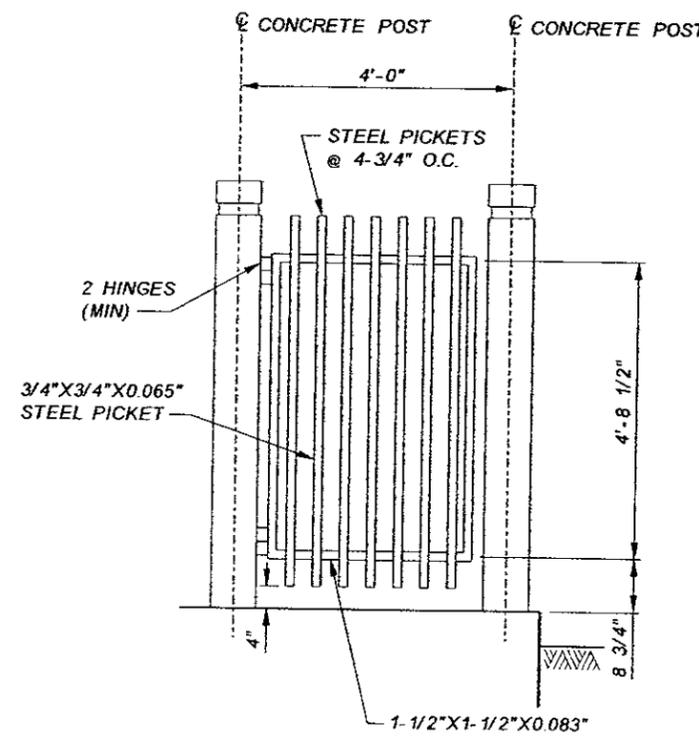
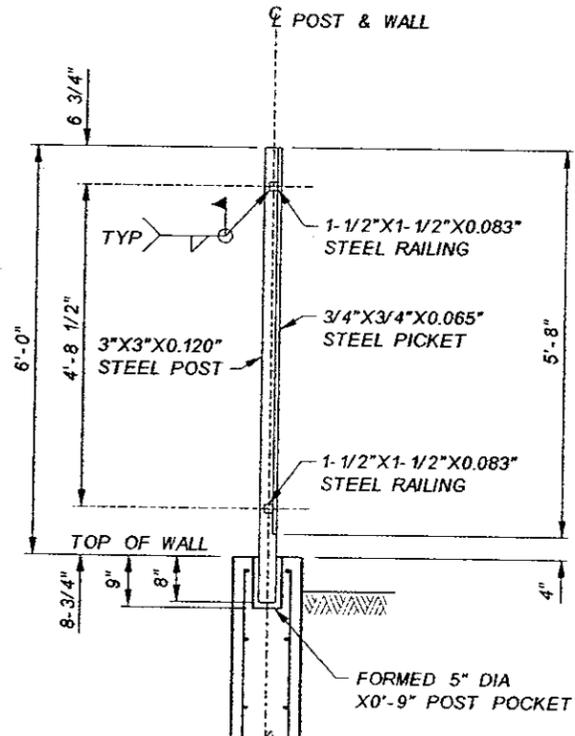
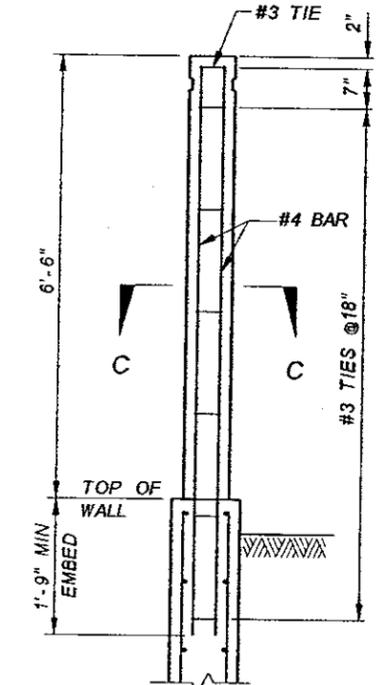
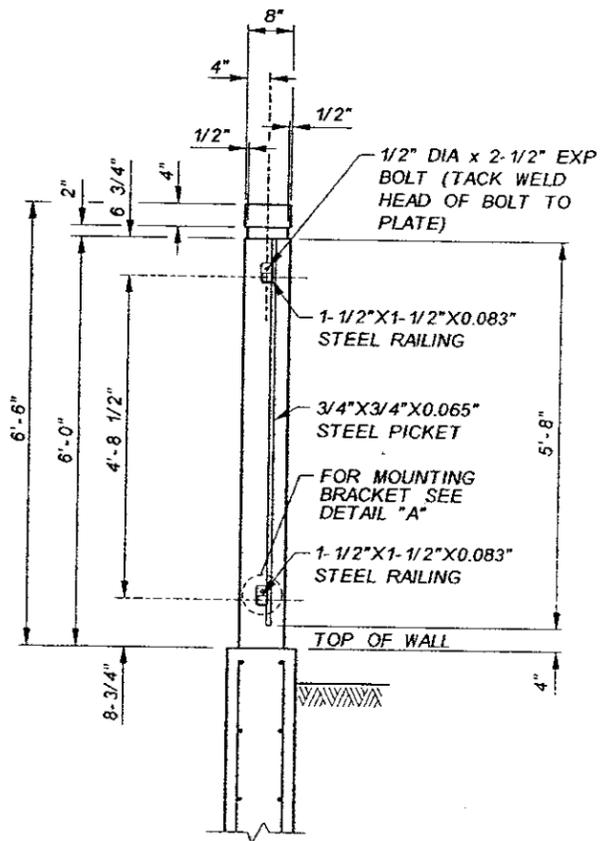


SECTION B-B  
NTS

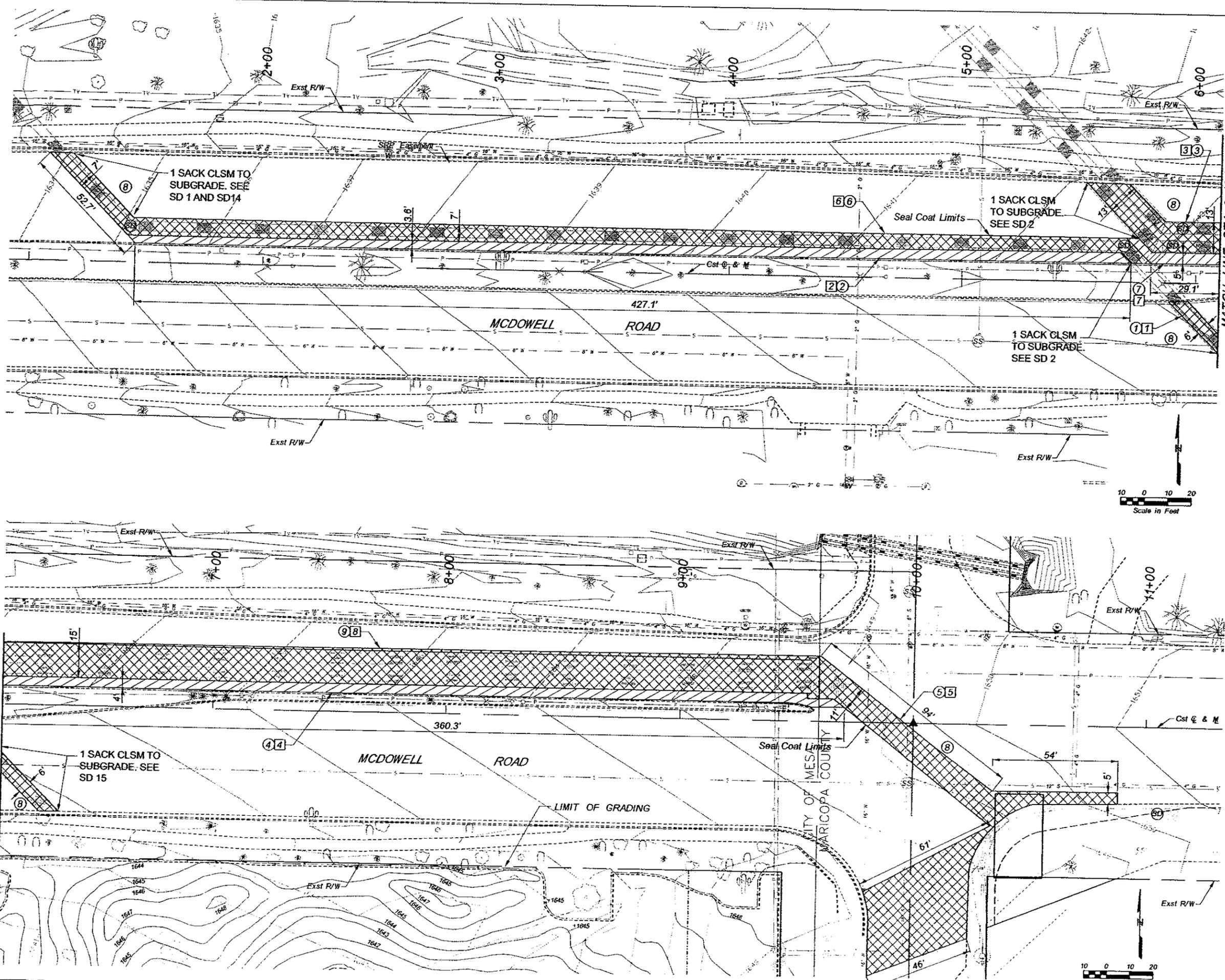
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NO.	REVISION	BY	DATE
	<b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>		
	<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</b>		
	DESIGNED	SMN	10/27/06
	DRAWN	MSK	10/27/06
	CHECKED	KJK/DJL	10/27/06
DRAWING NO.	STRUCTURE #12		SHEET OF
ST8			50 73



NOTE:  
CONCRETE COLOR FOR THE STRUCTURE AND CONCRETE POSTS SHALL MATCH REQUIREMENTS SPECIFIED IN SPECIAL PROVISIONS.



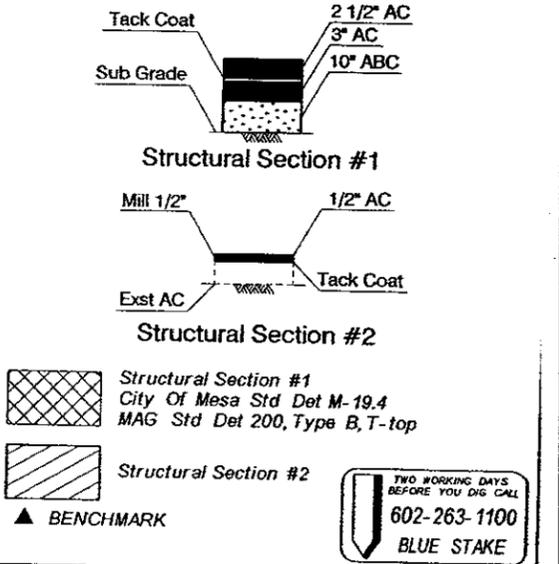
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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			
DESIGNED SMN		DATE 10/27/06	
DRAWN MSK		DATE 10/27/06	
CHECKED KJK/DJL		DATE 10/27/06	
 43306 KEVIN KIMM P.E. STATE OF ARIZONA		 Kimley-Horn and Associates, Inc.	
DRAWING NO. ST9	STRUCTURE #13	SHEET OF 51 73	



- REMOVE
- 1 REMOVE EXISTING AC PAVEMENT (NPI) 16 SY
  - 2 REMOVE EXISTING AC PAVEMENT (NPI) 184 SY
  - 3 REMOVE EXISTING AC PAVEMENT (NPI) 82 SY
  - 4 REMOVE EXISTING AC PAVEMENT (NPI) 160 SY
  - 5 REMOVE EXISTING AC PAVEMENT (NPI) 1031 SY
  - 6 REMOVE EXISTING AC PAVEMENT (NPI) 361 SY
  - 7 REMOVE EXISTING AC PAVEMENT (NPI) 20 SY
  - 8 REMOVE EXISTING AC PAVEMENT (NPI) 601 SY
- CONSTRUCT

- 1 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & COM STD DET M-19.4 16 SY
- 2 CONSTRUCT AC PAVEMENT PER, STRUCTURAL SECTION #2 184 SY
- 3 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & COM STD DET M-19.4 82 SY
- 4 CONSTRUCT AC PAVEMENT PER, STRUCTURAL SECTION #2 160 SY
- 5 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 364 SY
- 6 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & COM STD DET M-19.4 361 SY
- 7 CONSTRUCT AC PAVEMENT PER, STRUCTURAL SECTION #2 20 SY
- 8 REPLACE IN-KIND PAVEMENT STRIPING (NPI)
- 9 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & COM STD DET M-19.4 601 SY

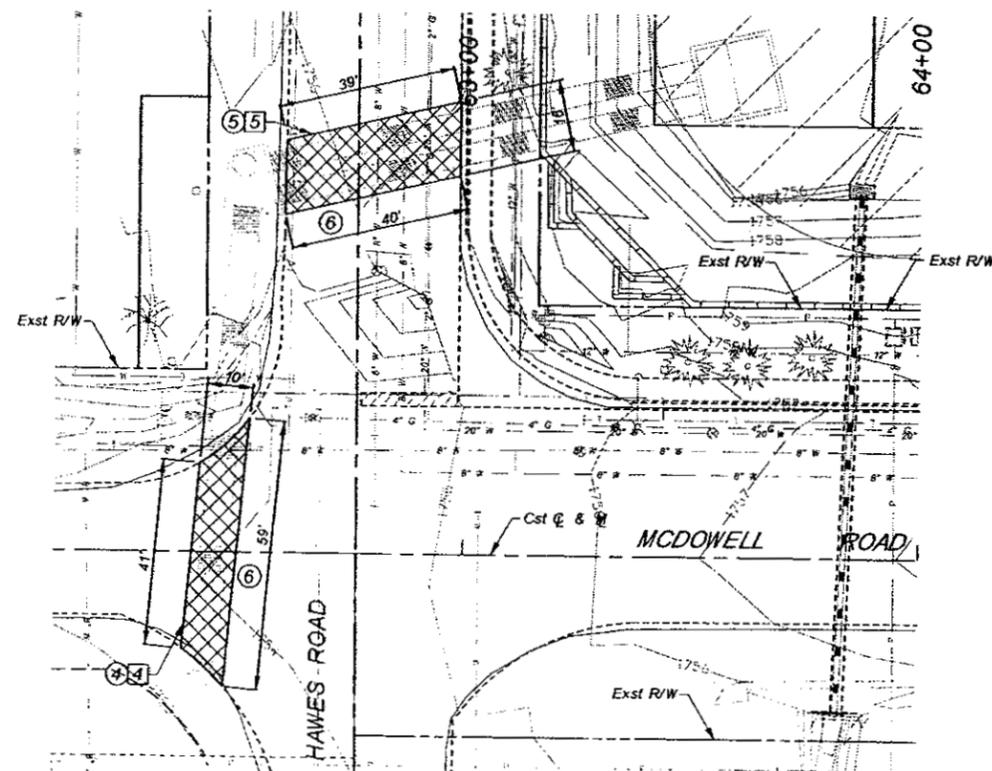
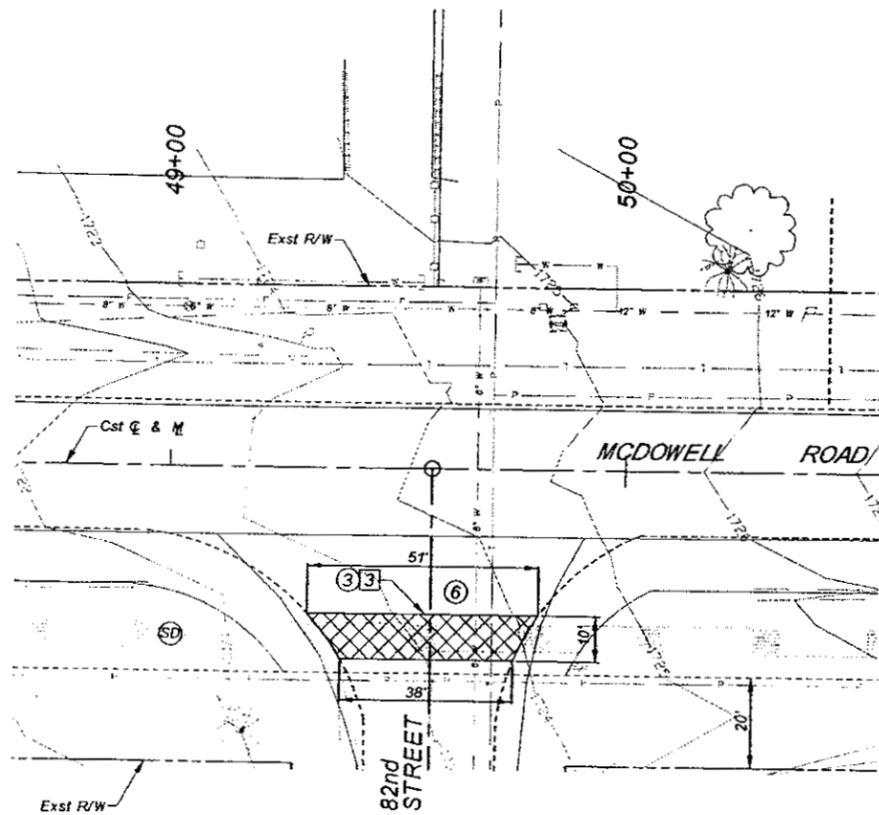
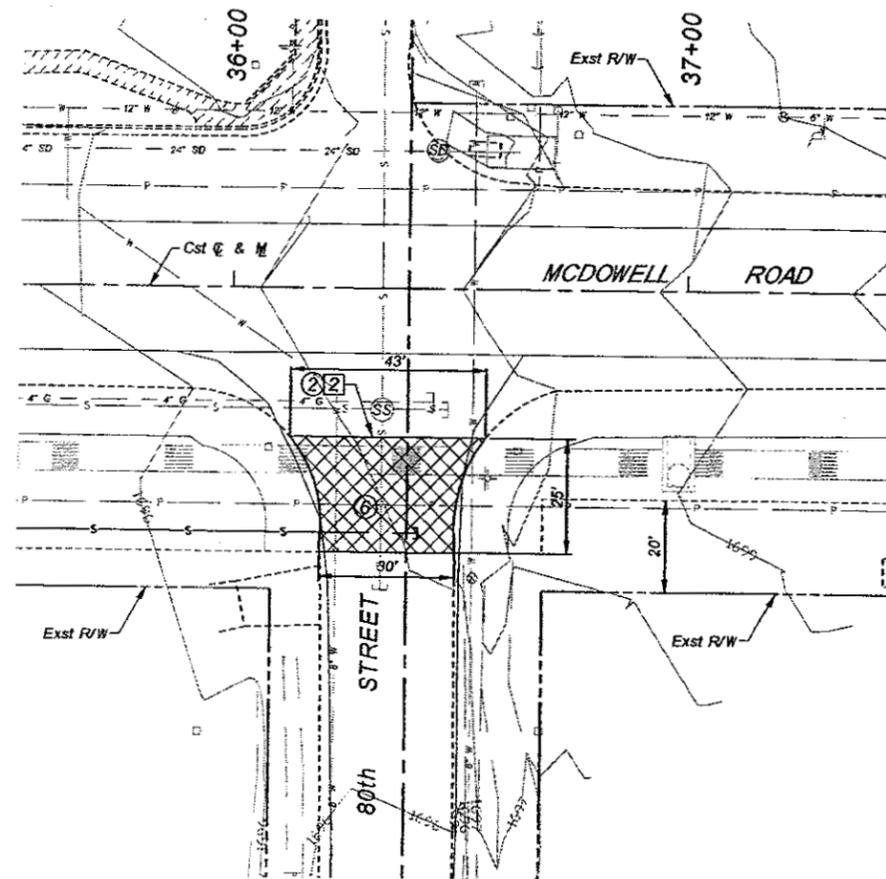
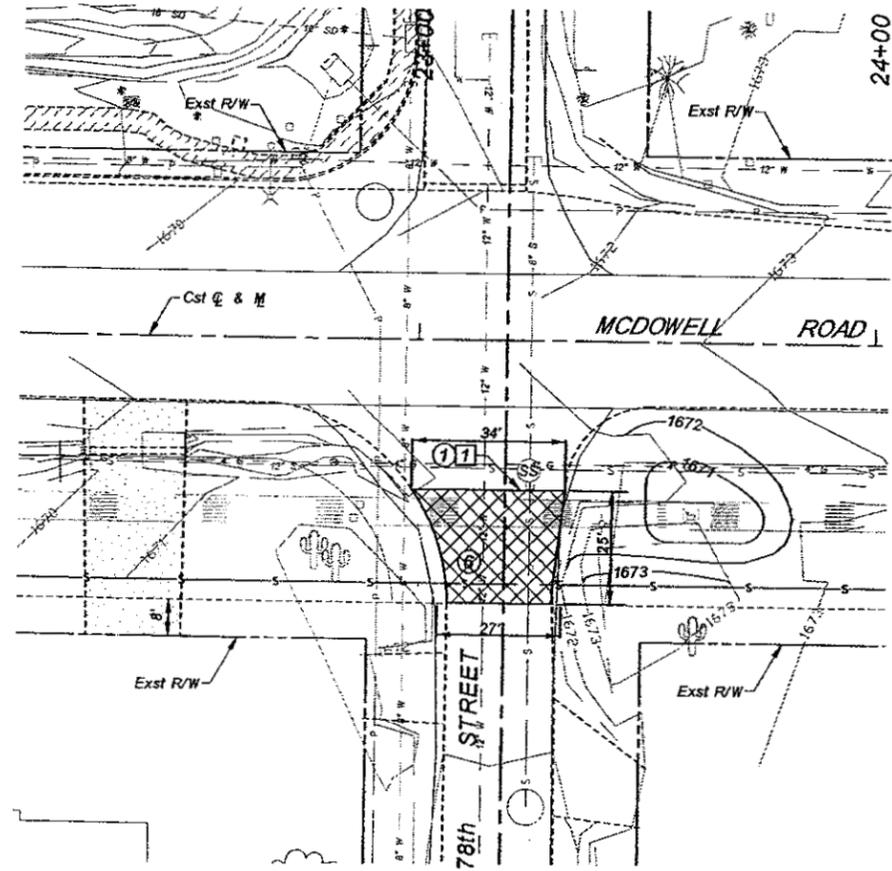
NOTE:  
SEAL COAT LIMITS TO MATCH PAVEMENT REPLACEMENT LIMITS.



NO.	REVISION	BY	DATE
3			
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**  
MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
PCN 420.03.31

DESIGNED	BY	DATE
DEJ	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06



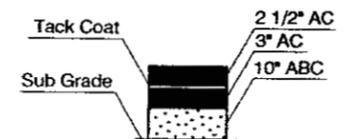
REMOVE

- 1 REMOVE EXISTING AC PAVEMENT (NPI) 35 SY
- 2 REMOVE EXISTING AC PAVEMENT (NPI) 45 SY
- 3 REMOVE EXISTING AC PAVEMENT (NPI) 52 SY
- 4 REMOVE EXISTING AC PAVEMENT (NPI) 59 SY
- 5 REMOVE EXISTING AC PAVEMENT (NPI) 70 SY

CONSTRUCT

- 1 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 73 SY
- 2 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 91 SY
- 3 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 52 SY
- 4 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 59 SY
- 5 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 70 SY
- 6 REPLACE IN-KIND PAVEMENT STRIPING (NPI)

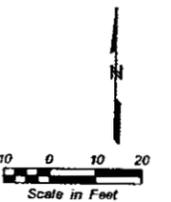
NOTE:  
SEAL COAT LIMITS TO MATCH PAVEMENT REPLACEMENT LIMITS.



Structural Section #1

Structural Section #1  
MAG Std Det 200, Type B, T-top

TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



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NO.	REVISION	BY	DATE

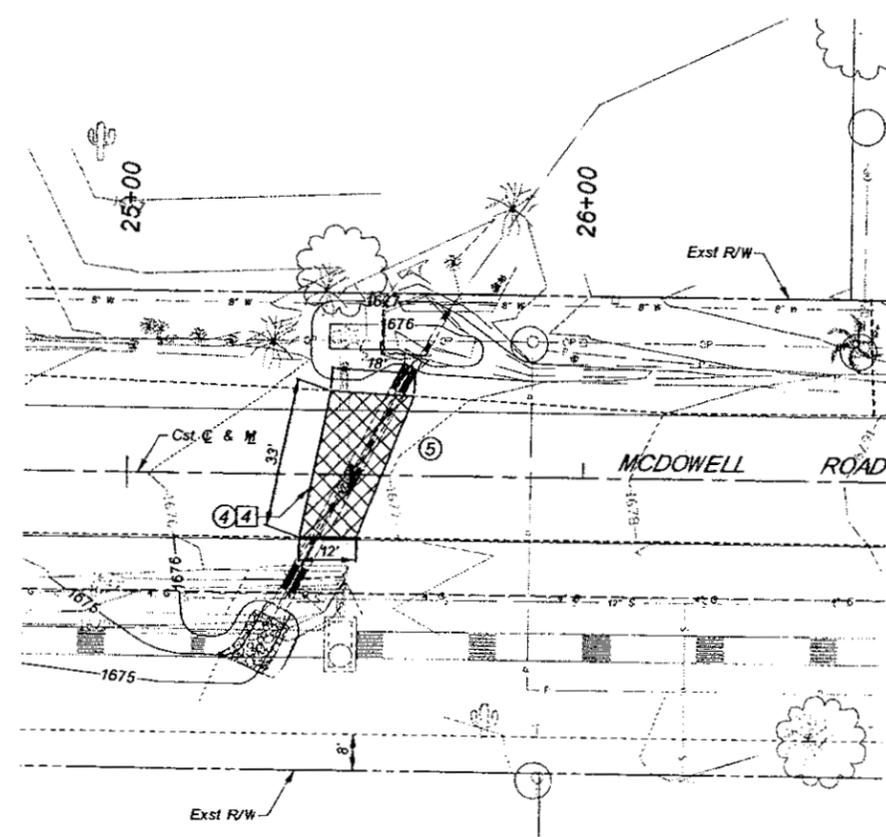
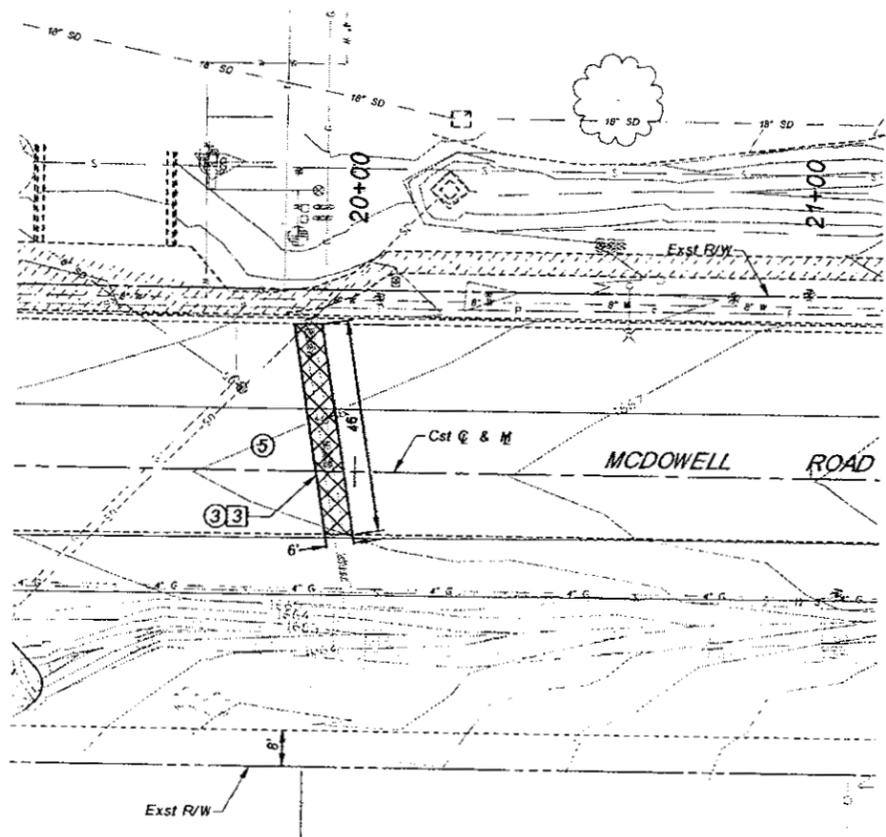
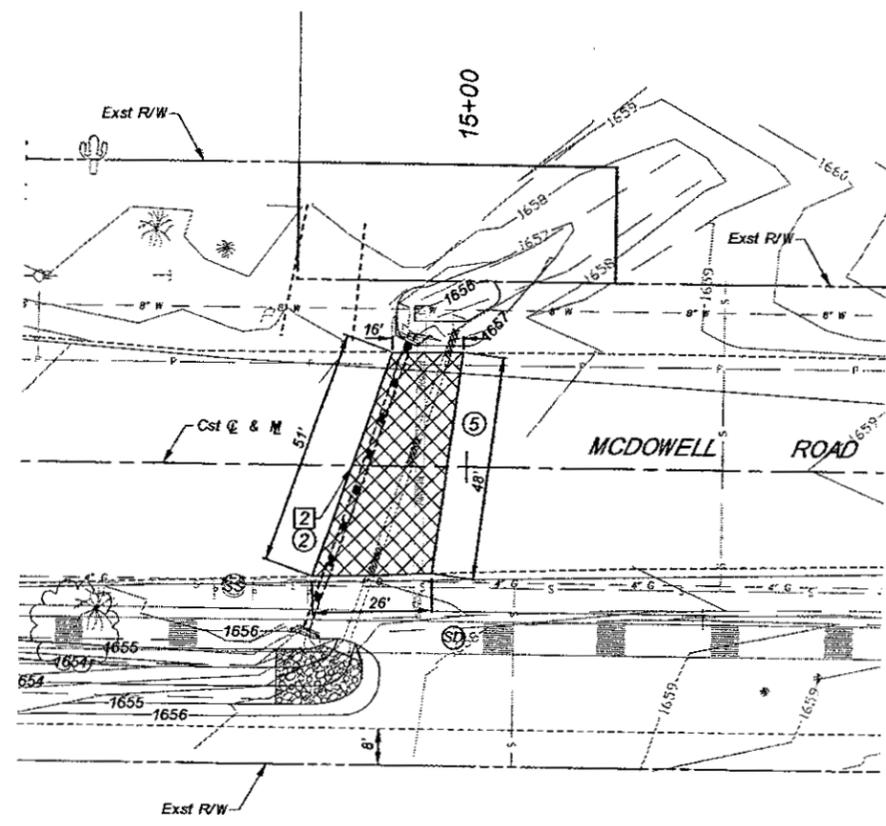
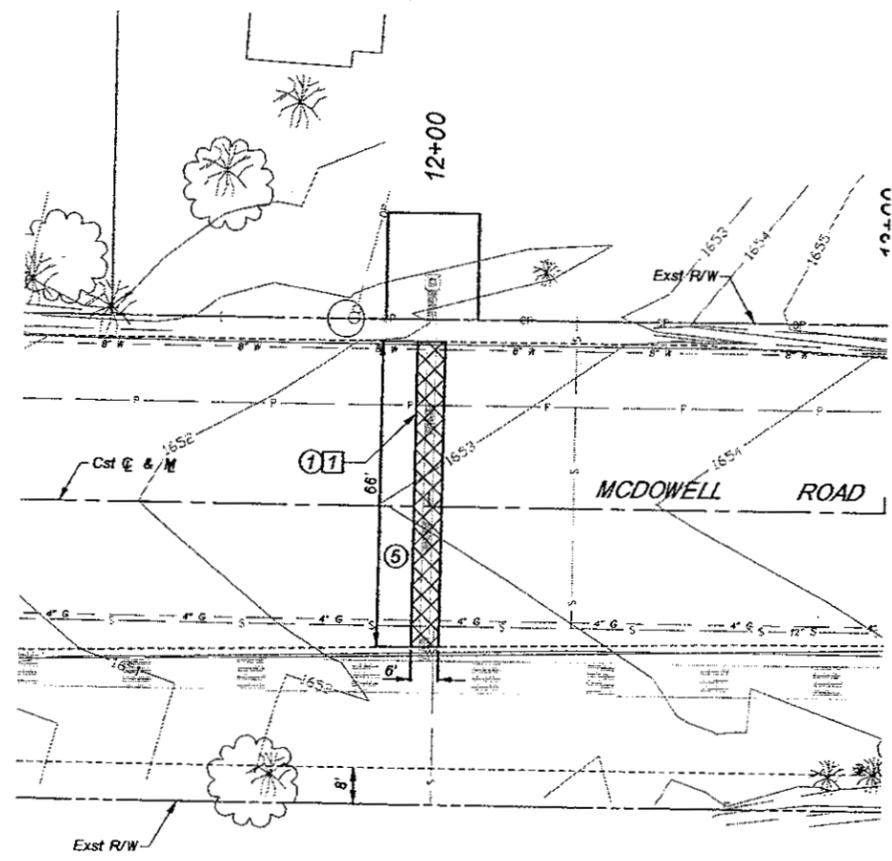
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION

MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
PCN 420.03.31

	DESIGNED	DEJ	DATE	10/27/06
	DRAWN	DKS	DATE	10/27/06
	CHECKED	RAE	DATE	10/27/06

Kimley-Horn and Associates, Inc.

DRAWING NO.	ASPHALT REPLACEMENT PLAN	SHEET OF
RD2		53 73



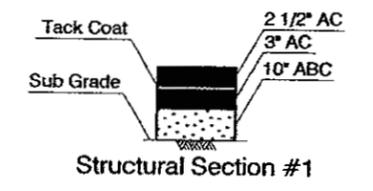
REMOVE

- 1 REMOVE EXISTING AC PAVEMENT (NPI) 44 SY
- 2 REMOVE EXISTING AC PAVEMENT (NPI) 96 SY
- 3 REMOVE EXISTING AC PAVEMENT (NPI) 31 SY
- 4 REMOVE EXISTING AC PAVEMENT (NPI) 54 SY

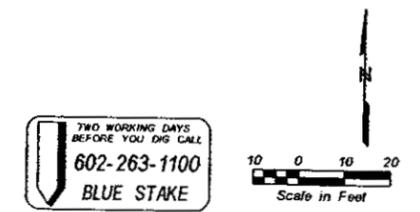
CONSTRUCT

- 1 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 44 SY
- 2 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 96 SY
- 3 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 31 SY
- 4 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 54 SY
- 5 REPLACE IN-KIND PAVEMENT STRIPING (NPI)

NOTE:  
SEAL COAT LIMITS TO MATCH PAVEMENT REPLACEMENT LIMITS.



Structural Section #1  
MAG Std Det 200, Type B, T-top



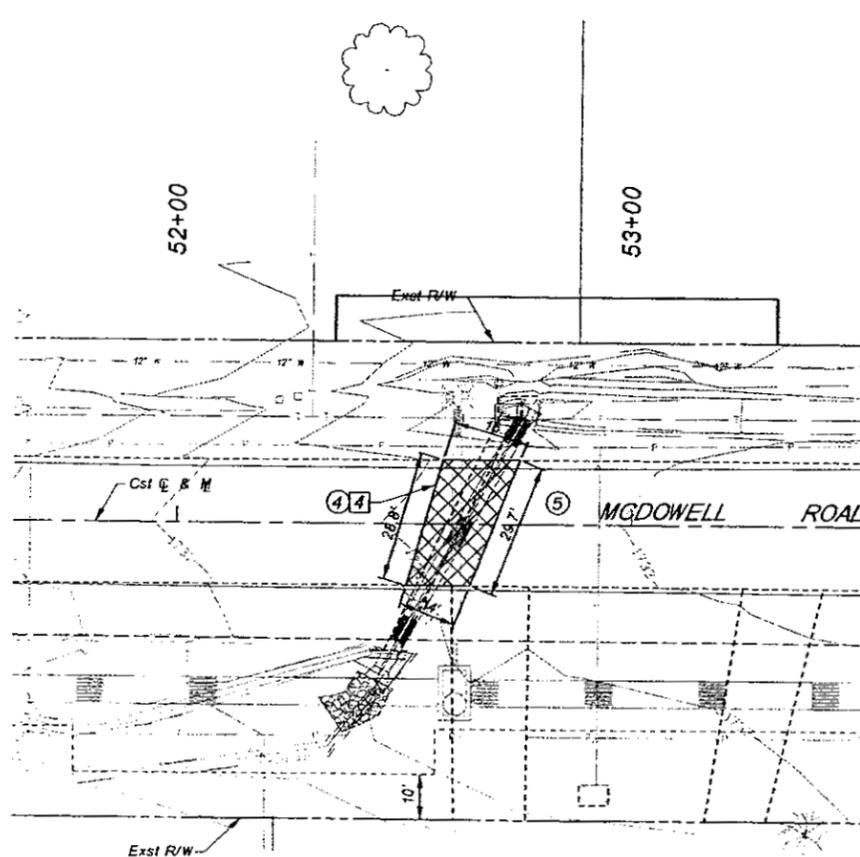
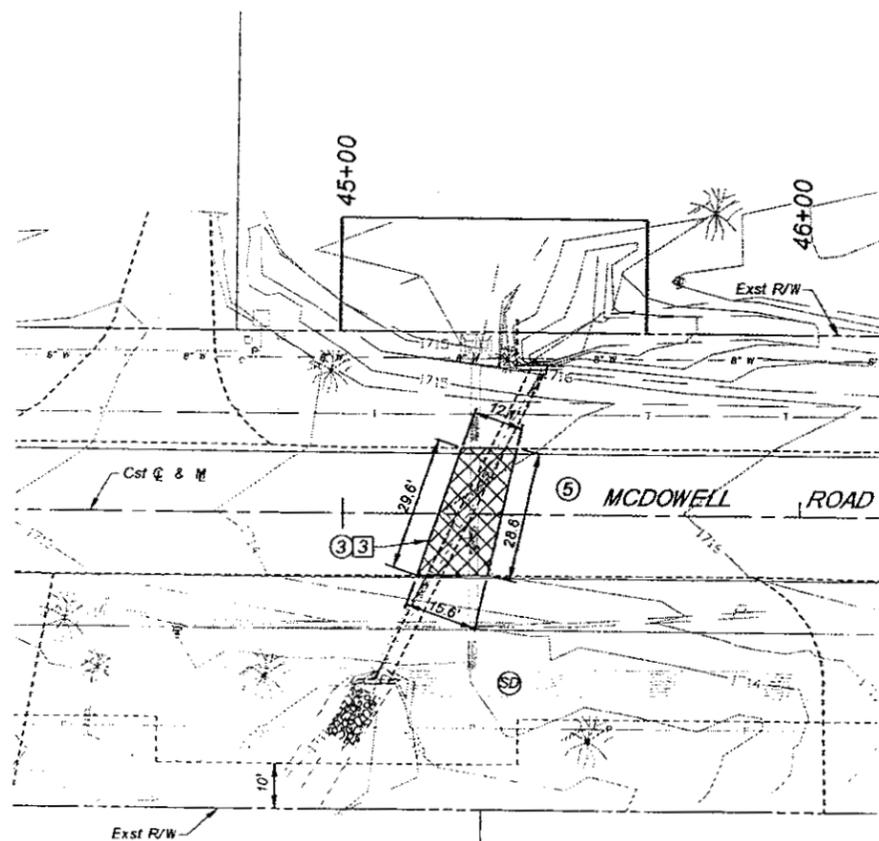
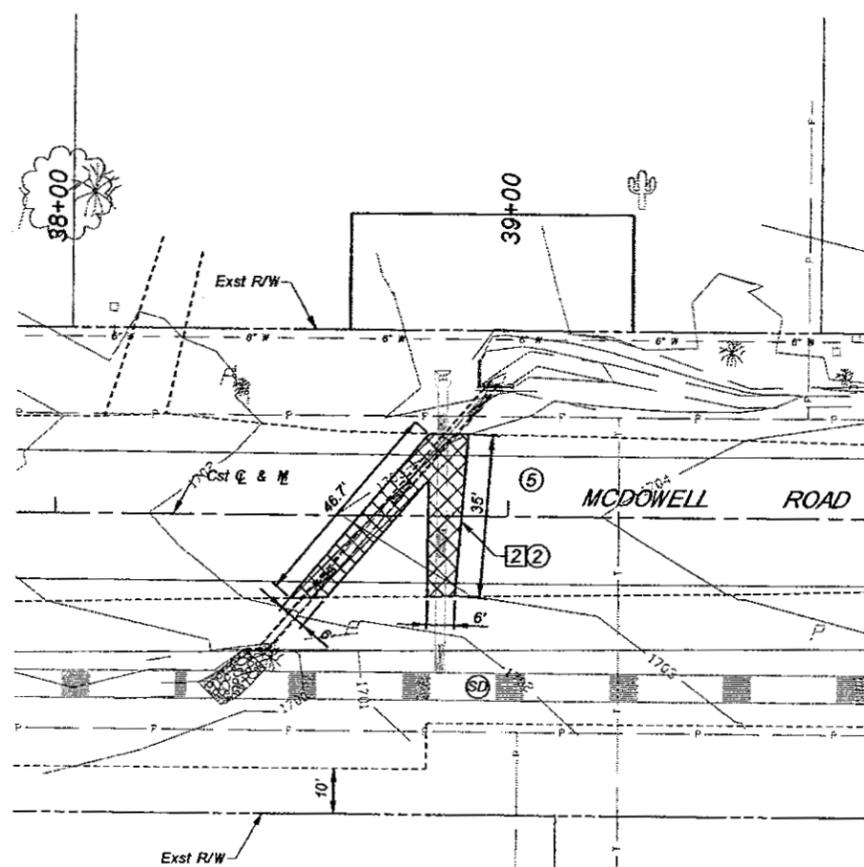
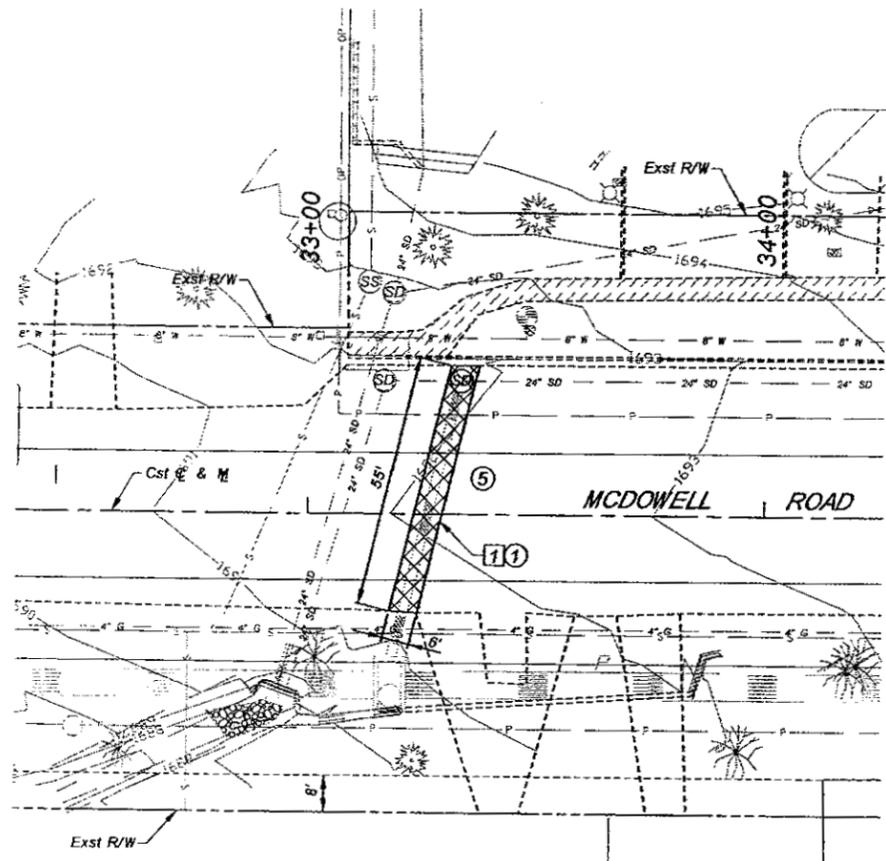
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NO.	REVISION	BY	DATE

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31**

	DESIGNED	DEJ	10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06

DRAWING NO. RD3	ASPHALT REPLACEMENT PLAN	SHEET OF 54 73
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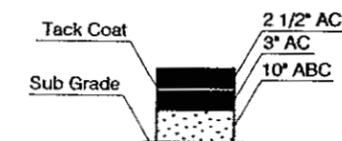
REMOVE

- 1 REMOVE EXISTING AC PAVEMENT (NPI) 34 SY
- 2 REMOVE EXISTING AC PAVEMENT (NPI) 56 SY
- 3 REMOVE EXISTING AC PAVEMENT (NPI) 43 SY
- 4 REMOVE EXISTING AC PAVEMENT (NPI) 47 SY

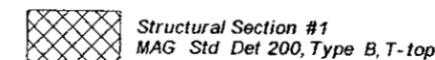
CONSTRUCT

- 1 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 34 SY
- 2 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 56 SY
- 3 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 43 SY
- 4 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B,T-TOP 47 SY
- 5 REPLACE IN-KIND PAVEMENT STRIPING (NPI)

NOTE:  
SEAL COAT LIMITS TO MATCH PAVEMENT REPLACEMENT LIMITS.



Structural Section #1



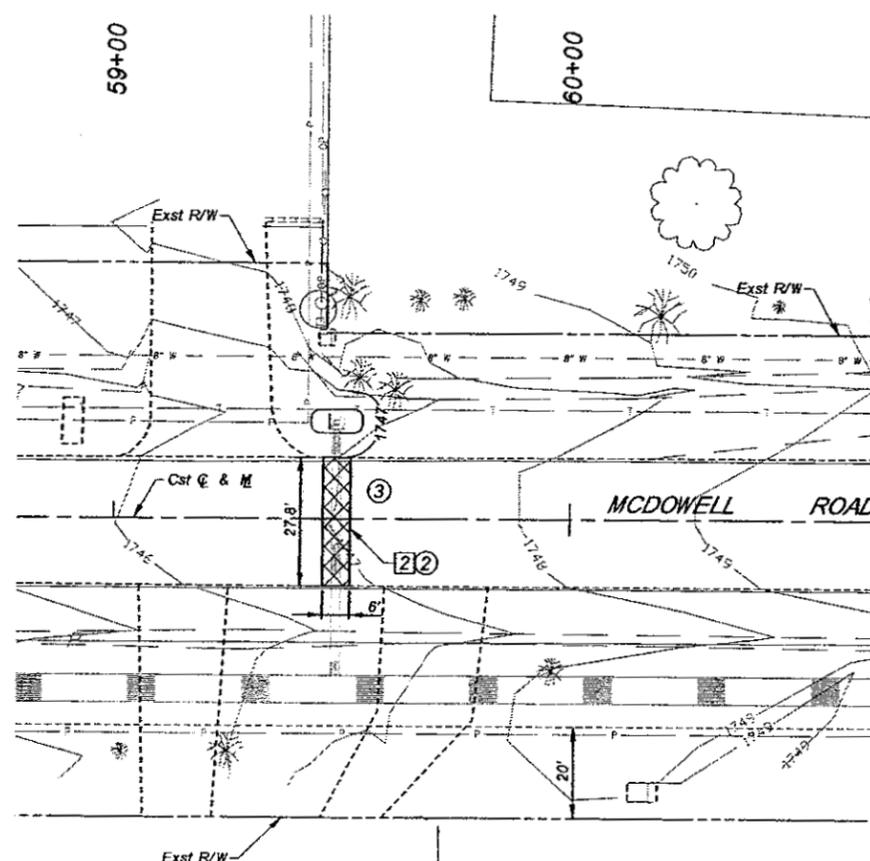
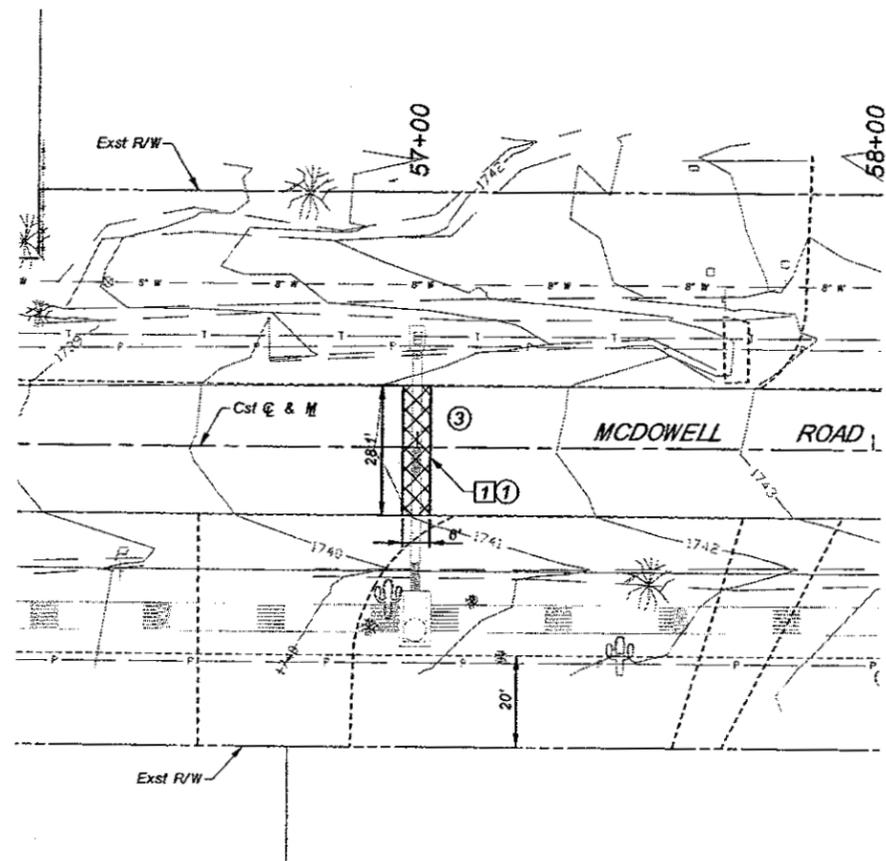
NO.	REVISION	BY	DATE
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**  
MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
PCN 420.03.31

	BY	DATE
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

**Kimley-Horn and Associates, Inc.**

DRAWING NO. RD4 ASPHALT REPLACEMENT PLAN SHEET OF 55 73



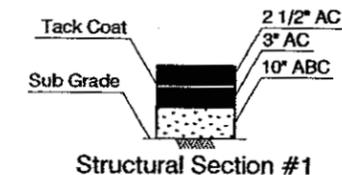
REMOVE

- 1 REMOVE EXISTING AC PAVEMENT (NPI) 19 SY
- 2 REMOVE EXISTING AC PAVEMENT (NPI) 19 SY

CONSTRUCT

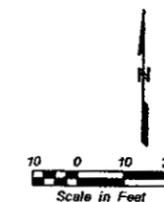
- 1 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B, T-TOP 19 SY
- 2 CONSTRUCT AC PAVEMENT PER STRUCTURAL SECTION #1 & MAG STD DET 200 TYPE B, T-TOP 19 SY
- 3 REPLACE IN-KIND PAVEMENT STRIPING (NPI)

NOTE:  
SEAL COAT LIMITS TO MATCH PAVEMENT REPLACEMENT LIMITS.



Structural Section #1  
MAG Std Det 200, Type B, T-top

TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



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NO.	REVISION	BY	DATE

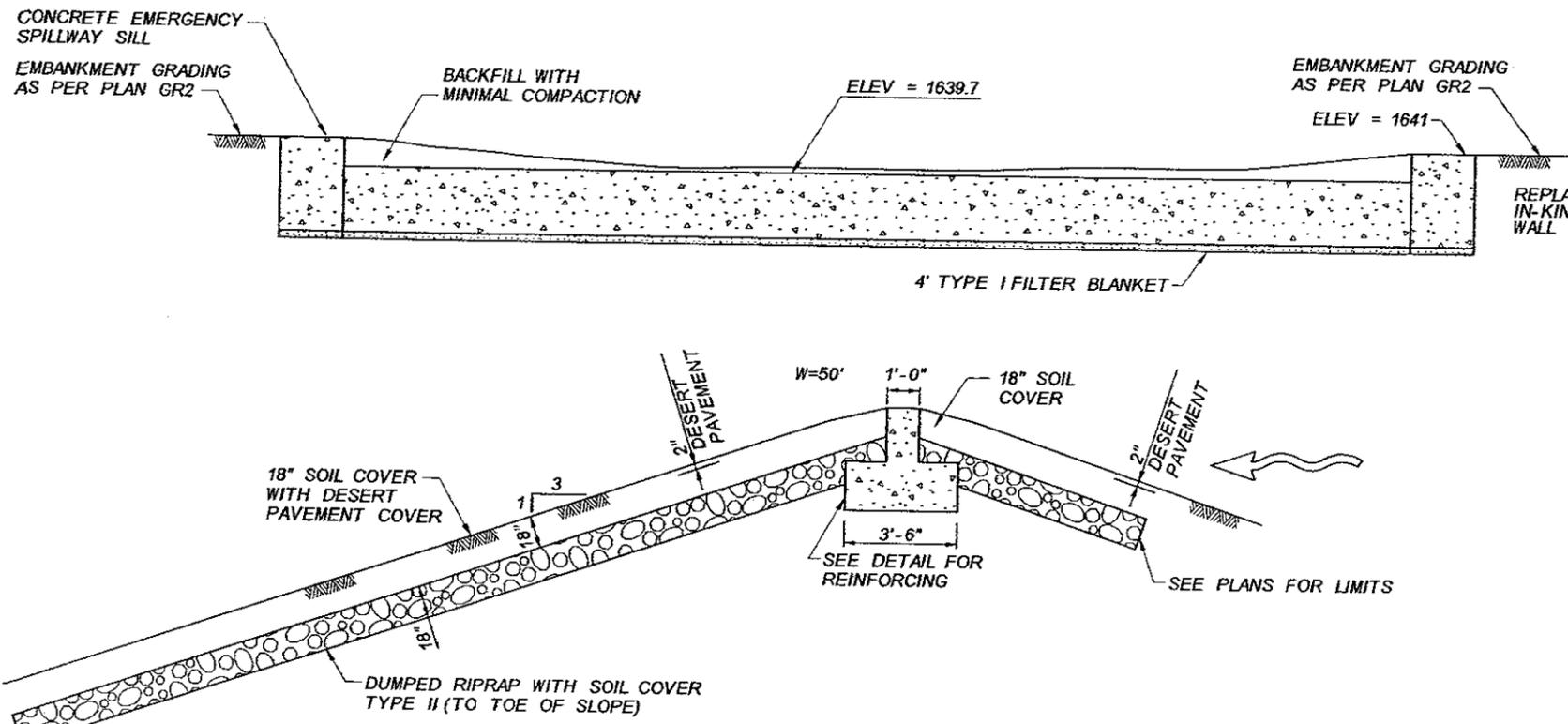
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
PCN 420.03.31

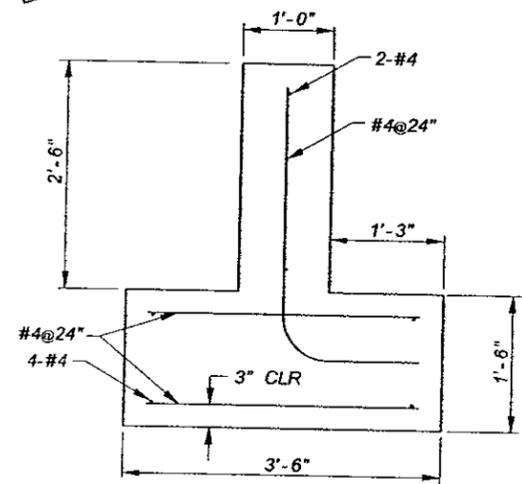
	DESIGNED	DEJ	10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06

**Kimley-Horn and Associates, Inc.**

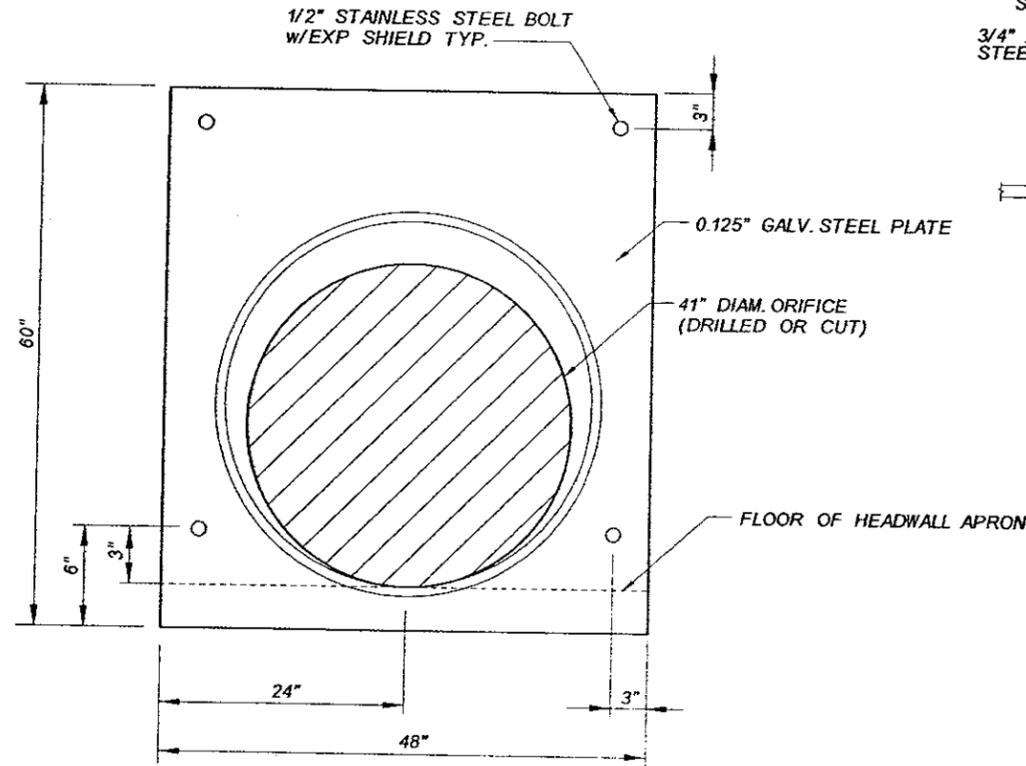
DRAWING NO. RDS	ASPHALT REPLACEMENT PLAN	SHEET OF 56 73
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CONCRETE EMERGENCY SPILLWAY DETAIL

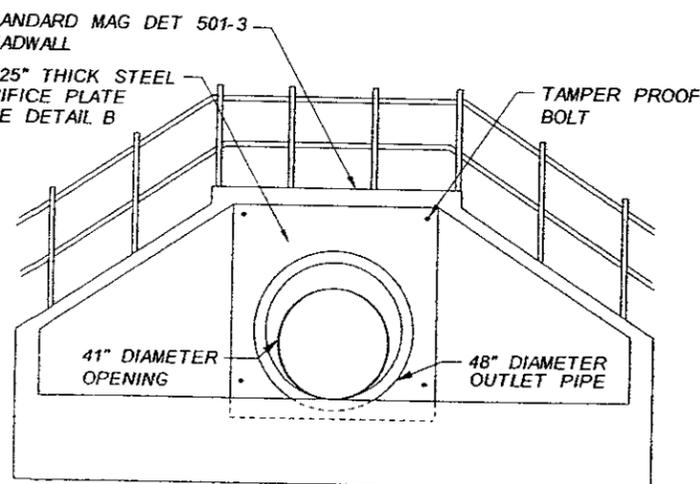


DETAIL A



DETAIL B

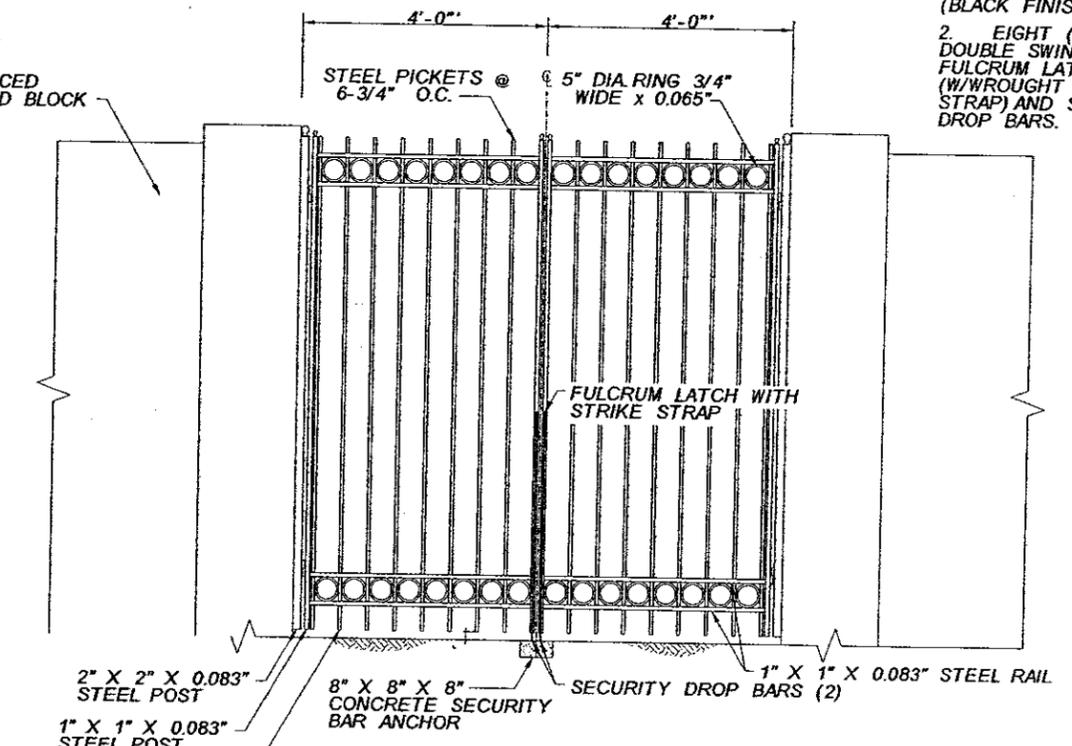
1. STEEL: ASTM A 36 STEEL.
2. BOLTS: USE 1/2 INCH STAINLESS STEEL BOLTS AND 1/8 INCH STAINLESS STEEL WASHERS.
3. COATING: COAT ALL METAL PARTS WITH ASPHALTUM PAINT.



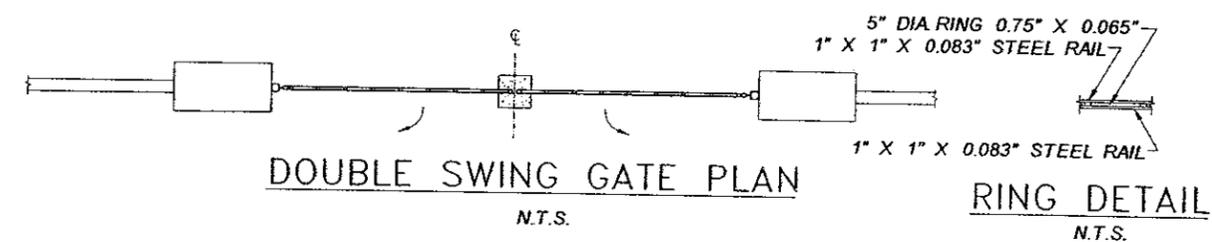
STRUCTURE NO. 14  
(ACCESS BARRIER NOT SHOWN)

THUNDER MOUNTAIN ACCESS GATE

NOTE:  
1. MATCH COAT FINISH WITH EXISTING GATE AT THUNDERBIRD MOUNTAIN ESTATES MAIN ENTRANCE (BLACK FINISH).  
2. EIGHT (8) FOOT WIDE DOUBLE SWING GATE WITH FULCRUM LATCH (W/WROUGHT IRON STRIKE STRAP) AND SECURITY DROP BARS.



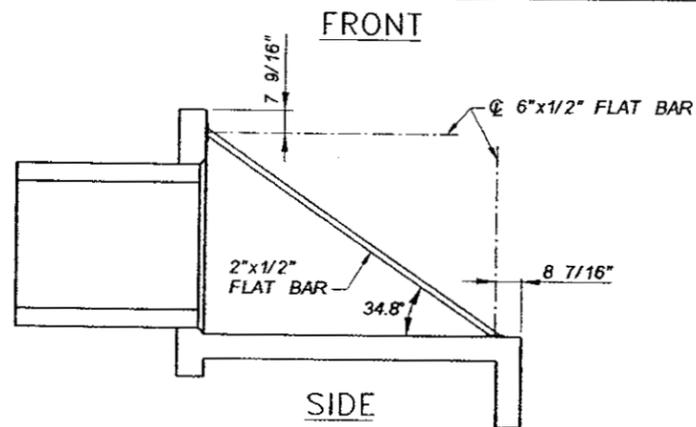
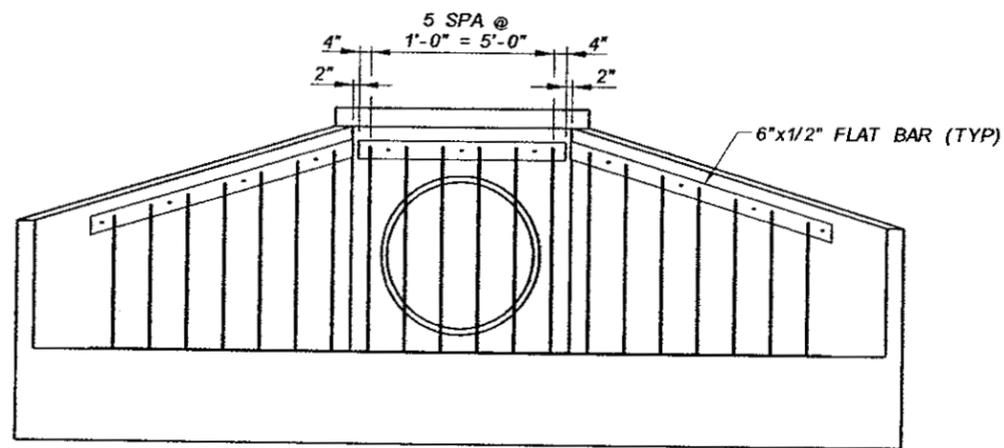
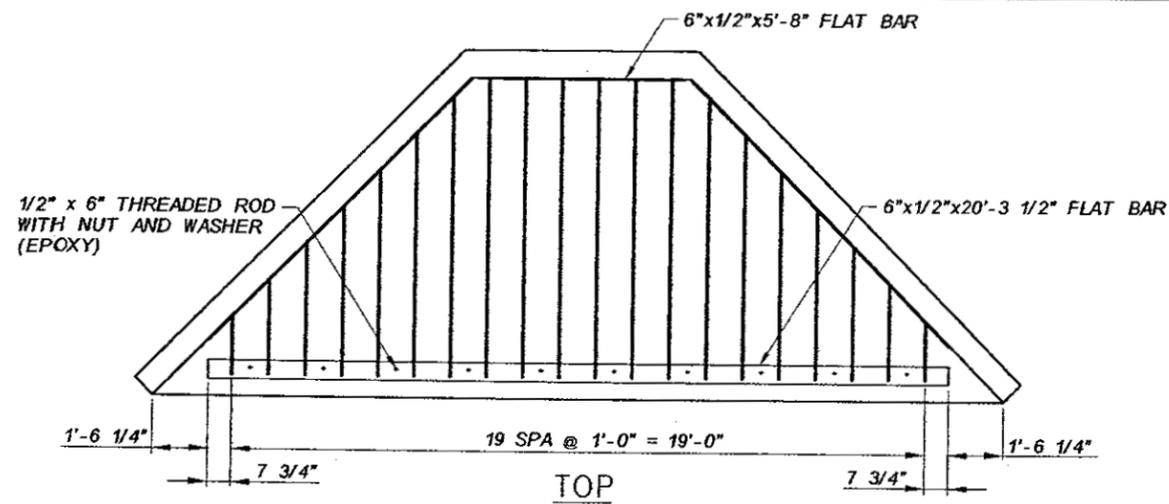
DOUBLE SWING GATE ELEVATION



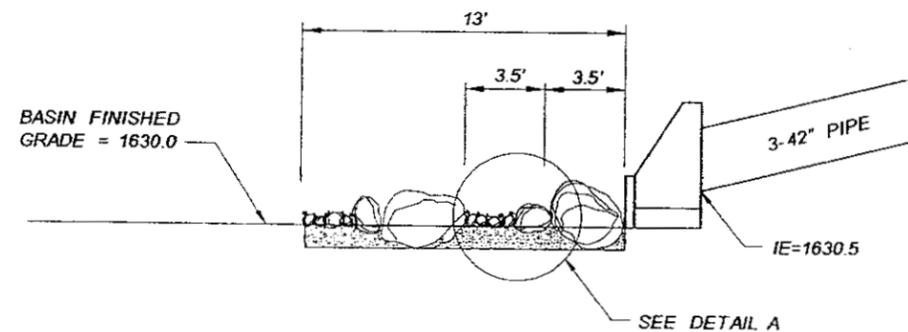
DOUBLE SWING GATE PLAN

RING DETAIL

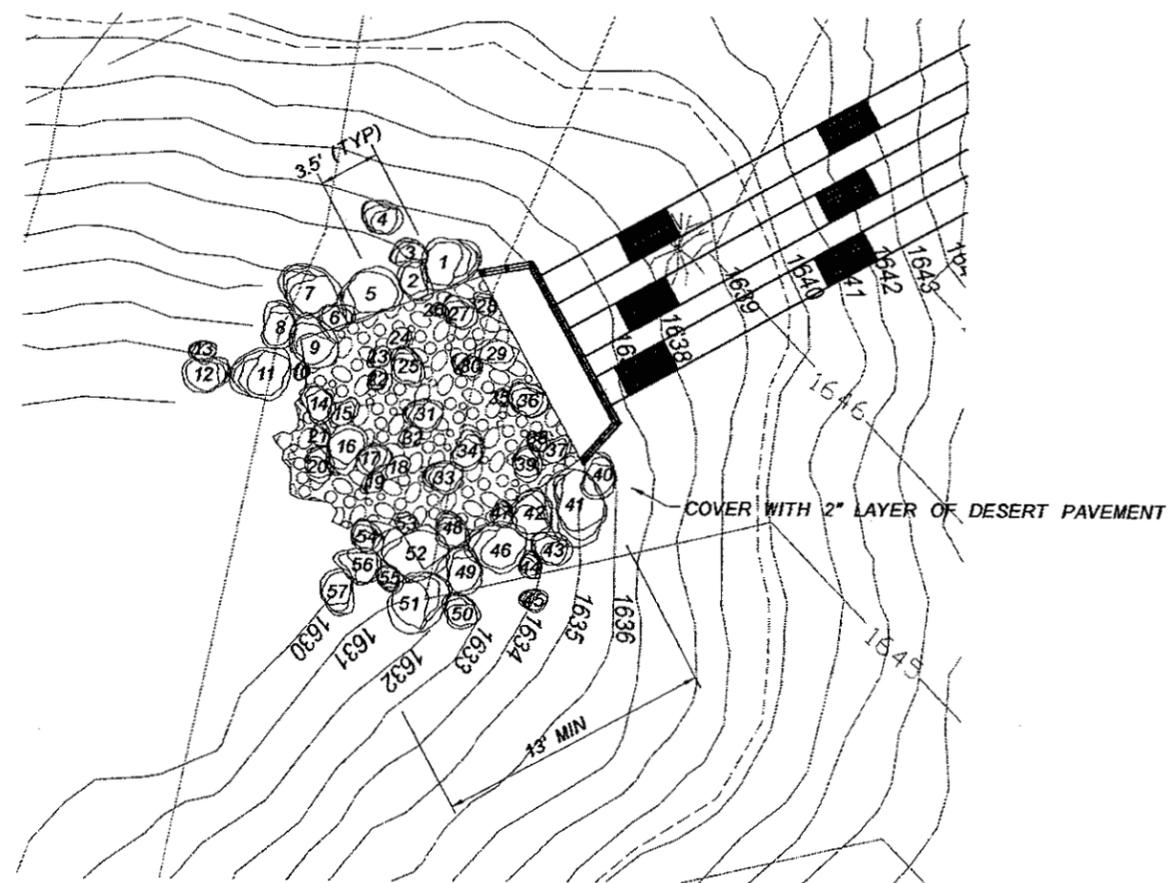
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NO.	REVISION	BY	DATE
<p><b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> ENGINEERING DIVISION</p> <p>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT PCN 420.03.31</p>			
	DESIGNED	DEJ	10/27/06
	DRAWN	DKS	10/27/06
	CHECKED	RAE	10/27/06
		BY	DATE
		<p>THUNDER MOUNTAIN ACCESS GATE &amp; SPILLWAY DETAILS</p>	
DRAWING NO. DT:			SHEET OF 57 73



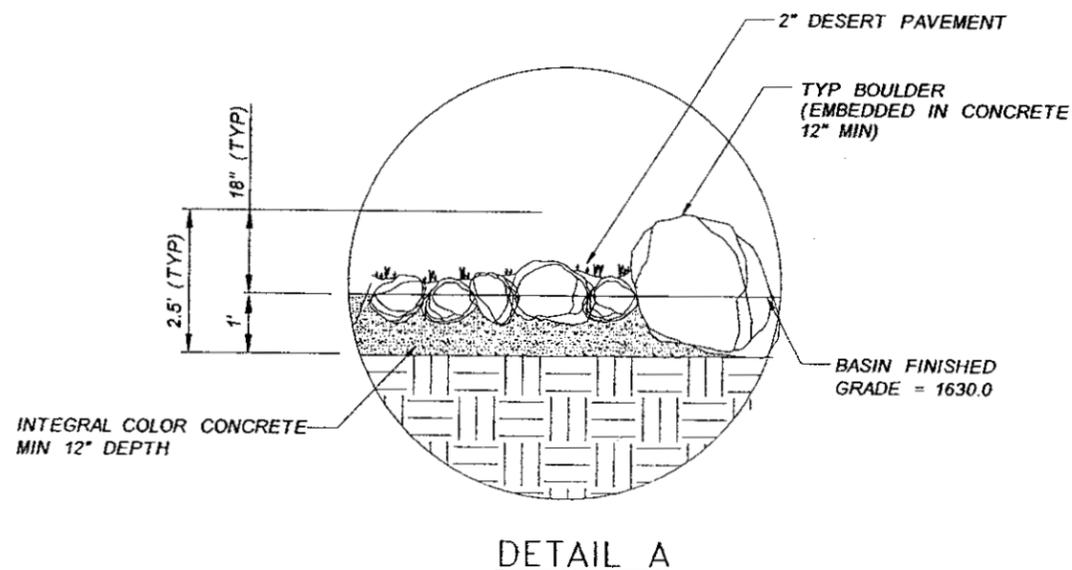
STRUCTURE NO. 14 TRASHRACK DETAIL



BASIN ENERGY DISSIPATER DETAIL



BOULDER SIZE LEGEND:  
 A - 3.5' X 2.5' X 2' LANDSCAPE BOULDER  
 B - 4' X 3' X 2.5' LANDSCAPE BOULDER  
 C - 5' X 3.5' X 3' LANDSCAPE BOULDER



DETAIL A

Reference No.	Size	Northing	Easting
1	C	897109.8	775917.9
2	A	897108.2	775914.6
3	B	897111.2	775913.9
4	B	897115.1	775911.4
5	C	897106.7	775910.0
6	A	897104.2	775906.2
7	C	897106.3	775903.5
8	B	897103.0	775899.6
9	C	897101.0	775903.6
10	A	897098.3	775902.3
11	C	897097.9	775898.3
12	B	897097.9	775891.5
13	A	897100.3	775891.6
14	A	897094.9	775904.5
15	A	897093.6	775907.1
16	B	897090.1	775907.5
17	A	897088.9	775910.2
18	A	897088.1	775913.0
19	A	897086.3	775910.5
20	A	897088.1	775904.2
21	A	897091.3	775904.5
22	A	897091.4	775910.7
23	A	897089.8	775911.0
24	A	897101.9	775913.1
25	A	897088.7	775914.0
26	A	897104.9	775917.5
27	A	897104.3	775918.9
28	A	897105.5	775922.7
29	B	897100.4	775923.8
30	A	897098.9	775920.9
31	B	897093.6	775916.0
32	A	897091.0	775914.0
33	A	897087.0	775918.1
34	A	897089.7	775920.7
35	A	897095.8	775924.2
36	B	897095.0	775927.4
37	A	897089.7	775930.2
38	A	897090.7	775928.3
39	A	897088.3	775927.3
40	B	897087.5	775934.8
41	C	897085.0	775932.5
42	B	897082.8	775927.5
43	A	897078.7	775930.3
44	A	897077.5	775927.6
45	A	897073.7	775928.0
46	C	897079.3	775924.2
47	A	897083.0	775924.3
48	A	897081.2	775918.9
49	B	897076.5	775920.2
50	A	897072.0	775920.3
51	C	897073.2	775914.7
52	C	897078.8	775915.2
53	A	897081.9	775913.9
54	A	897080.2	775909.5
55	A	897076.2	775912.1
56	B	897077.1	775909.1
57	B	897074.5	775906.6

NO.	REVISION	BY	DATE
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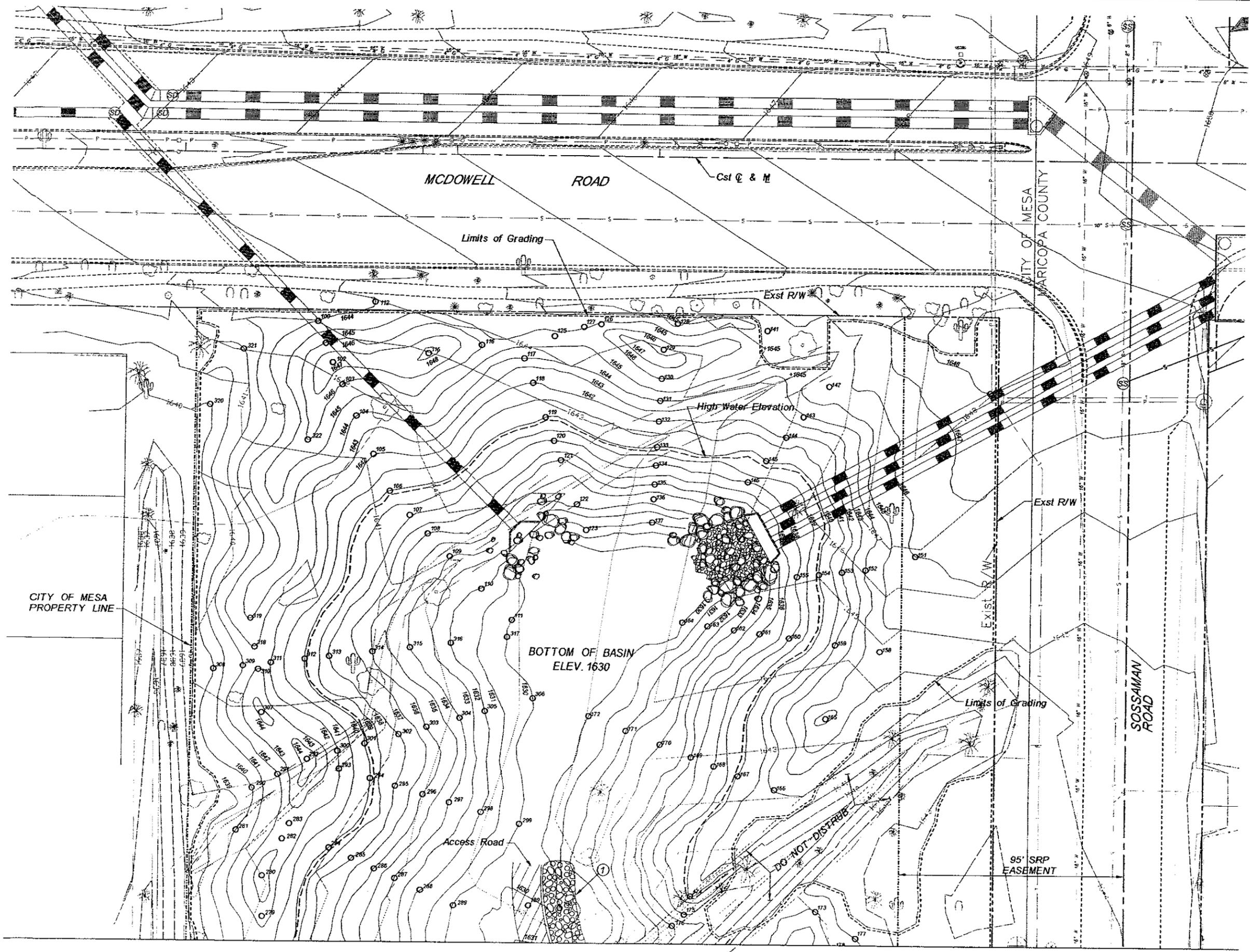
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**  
**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
**PCN 420.03.31**

	BY	DATE
DESIGNED	DEJ	10/27/06
DRAWN	DKS	10/27/06
CHECKED	RAE	10/27/06

**Robert A. Eichinger**  
 24757  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 10000  
 STATE OF ARIZONA

**Kinley-Horn and Associates, Inc.**  
 1000 N. CENTRAL AVENUE, SUITE 100  
 PHOENIX, ARIZONA 85004

DRAWING NO.	BASIN CULVERT OUTLET DETAILS	SHEET OF
DT2		58 73



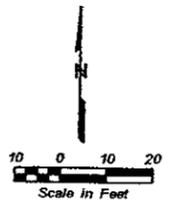
○ CONSTRUCT ○

- ① CONSTRUCT RIP-RAP EROSION BLANKET TYPE 1  $d_{50} = 6"$ , LENGTH = 35', WIDTH = 13', DEPTH = 1.5'. COVER WITH DESERT PAVEMENT PER LS PLANS. 52 SY
- GRADE BASIN TO CONTOURS SHOWN 12,600 CY

- LEGEND:**
- <sup>162</sup> CONTROL POINT COORDINATE LOCATION SEE SHEET GR3
  - LIMITS OF GRADING
  - LIMITS OF PROTECTIVE FENCING

- NOTE:**
1. NO WORK SHALL BE DONE, NOR VEGETATION DISTURBED WITHIN THE "DO NOT DISTURB" LIMITS SHOWN ON THESE PLANS
  2. SEE DWG GR3 FOR GRADING GEOMETRIC CONTROL.
  3. SEE DWG NO.S SD3 & SD15 FOR STORM DRAIN PLAN AND PROFILE.
  4. SEE DWG LP-1 FOR LANDSCAPE BOULDERS.

TWO WORKING DAYS BEFORE YOU DIG CALL  
602-263-1100  
BLUE STAKE



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1			
NO.	REVISION	BY	DATE

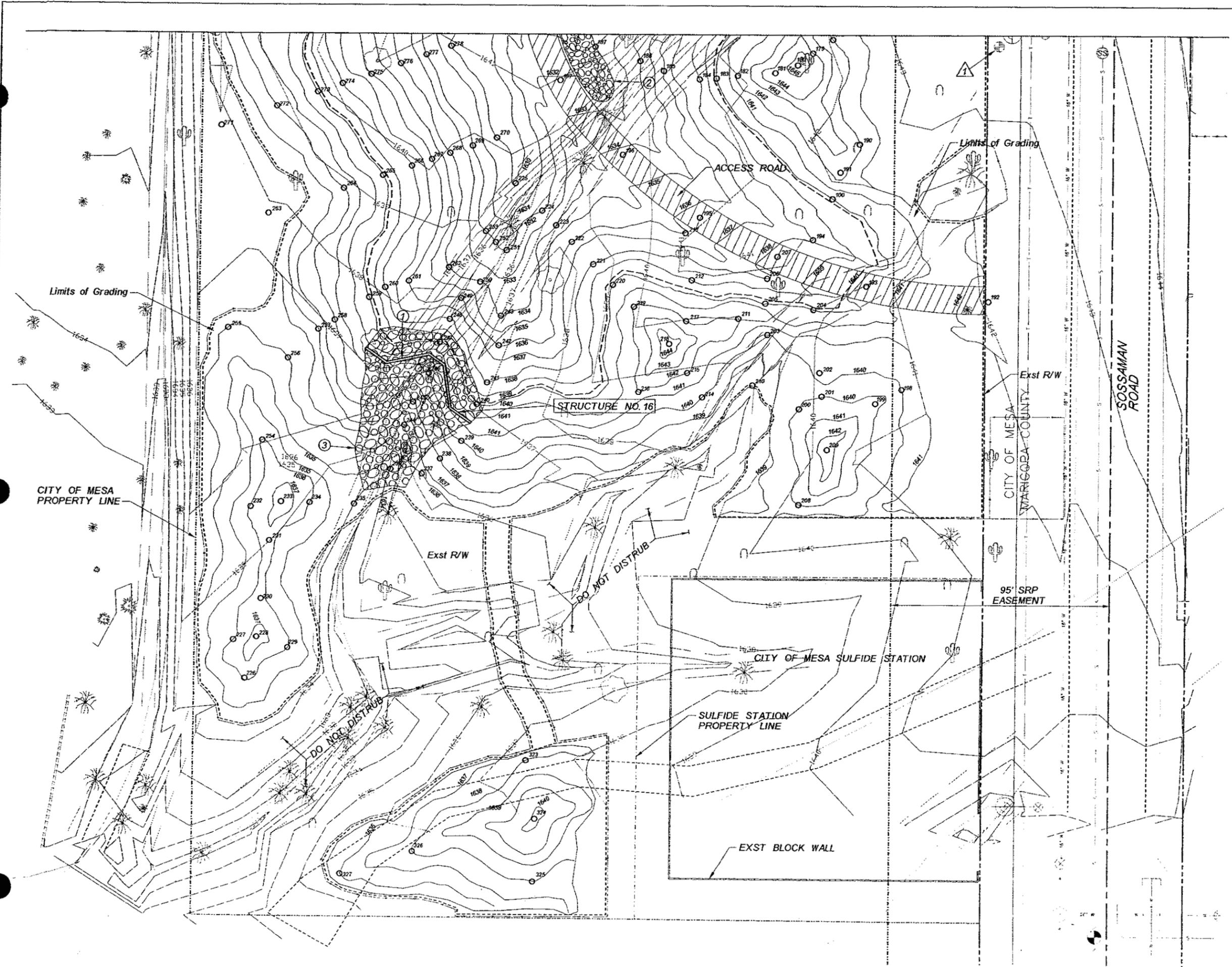
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**  
ENGINEERING DIVISION

**MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT**  
PCN 420.03.31

	DESIGNED	DEJ	DATE	10/27/06
	DRAWN	DKS		10/27/06
	CHECKED	RAE		10/27/06

**Kimley-Horn and Associates, Inc.**  
KIMLEY-HORN AND ASSOCIATES, INC.

DRAWING NO.	GR1	GRADING PLAN	SHEET OF	59 73
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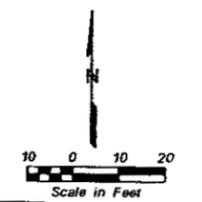
- GR1 ○ CONSTRUCTION PLAN 59
- ① INSTALL STRUCTURE NO. 16 - EMERGENCY SPILLWAY CONTROL SILL PER DETAIL DT1 1 EA
  - ② CONSTRUCT RIP-RAP EROSION BLANKET TYPE 1 d<sub>50</sub> = 6", LENGTH = 30', WIDTH = 15', DEPTH = 1.5'. COVER WITH DESERT PAVEMENT PER LS PLANS 44 SY
  - ③ CONSTRUCT RIP-RAP EROSION BLANKET TYPE 1 d = 12", LENGTH = 80', WIDTH = 55', DEPTH = 2.0'. COVER WITH DESERT PAVEMENT PER LS PLANS 210 SY
- GRADE BASIN TO CONTOURS SHOWN 3,750 CY

▲ PROTECT IN PLACE (FIRE HYDRANT) (NPI)

LEGEND:  
 ○<sup>152</sup> CONTROL POINT COORDINATE LOCATION SEE SHEET GR3  
 - - - - - LIMITS OF GRADING  
 - - - - - LIMITS OF PROTECTIVE FENCING

NOTE:  
 1. NO WORK SHALL BE DONE, NOR VEGETATION DISTURBED WITHIN THE "DO NOT DISTURB" LIMITS SHOWN ON PLANS  
 2. SEE DWG GR3 FOR GRADING GEOMETRIC CONTROL  
 3. SEE DWG NO.S SD3 & SD15 FOR STORM DRAIN PLAN AND PROFILE.  
 4. SEE DWG LP-4 FOR ACCESS ROAD STRUCTURAL SECTION.

TWO WORKING DAYS BEFORE YOU DIG CALL  
 602-263-1100  
 BLUE STAKE



3			
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NO.	REVISION	BY	DATE

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION**  
 MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT  
 PCN 420.03.31

	DESIGNED	DEJ	DATE	10/27/06
	DRAWN	DKS		10/27/06
	CHECKED	RAE		10/27/06

DRAWING NO. GR2      GRADING PLAN      SHEET OF 60 73

GRADING GEOMETRIC CONTROL

Reference No.	Control Point Coordinate Location		
	Northing	Easting	Elevation
100	897189.16	775740.96	1644.00
101	897180.03	775744.31	1646.00
102	897171.95	775747.28	1647.00
103	897162.75	775751.48	1646.00
104	897149.56	775757.49	1644.00
105	897133.46	775764.82	1642.00
106	897117.97	775771.87	1640.00
107	897107.81	775780.35	1638.00
108	897100.06	775788.00	1636.00
109	897090.51	775797.44	1634.00
110	897076.91	775810.87	1632.00
111	897063.81	775823.80	1630.00
112	897197.46	775764.91	1644.00
113	897171.34	775766.29	1646.00
114	897171.33	775771.23	1646.00
115	897176.04	775787.47	1647.00
116	897179.75	775809.90	1646.00
117	897174.28	775827.82	1644.00
118	897164.00	775831.62	1642.00
119	897149.61	775836.94	1640.00
120	897139.70	775840.61	1638.00
121	897131.56	775843.61	1636.00
122	897113.01	775850.47	1634.00
123	897102.13	775854.49	1632.00
124	897090.95	775858.63	1630.00
125	897183.71	775840.42	1646.00
126	897188.89	775859.92	1647.00
127	897187.62	775852.69	1646.00
128	897189.37	775892.53	1646.00
129	897178.42	775886.60	1648.00
130	897166.11	775885.91	1646.00
131	897156.88	775885.38	1644.00
132	897148.19	775884.89	1642.00
133	897137.39	775884.27	1640.00
134	897129.65	775883.83	1638.00
135	897121.63	775883.38	1636.00
136	897115.36	775883.02	1634.00
137	897105.54	775882.47	1632.00
138	897090.42	775881.61	1630.00
139	897082.87	775889.11	1630.00
140	897077.71	775893.23	1630.00
141	897186.59	775930.61	1646.00
142	897163.41	775957.23	1645.56
143	897150.52	775946.33	1644.00
144	897141.90	775939.03	1642.00
145	897131.96	775930.63	1640.00
146	897122.95	775923.00	1638.00
147	897113.32	775914.86	1636.00
148	897108.74	775910.99	1634.00
149	897097.77	775901.71	1632.00
150	897161.00	776025.57	1648.00
151	897092.02	775994.57	1646.00
152	897086.13	775973.39	1644.00
153	897085.09	775963.42	1642.00
154	897084.05	775953.58	1640.00
155	897083.07	775944.26	1638.00
156	897081.13	775925.78	1634.00
157	897079.82	775913.35	1632.00
158	897051.66	775979.78	1644.33
159	897054.30	775960.81	1642.00
160	897057.04	775941.13	1638.00
161	897058.76	775928.72	1636.00

Reference No.	Control Point Coordinate Location		
	Northing	Easting	Elevation
162	897060.28	775917.80	1634.00
163	897061.84	775906.58	1632.00
164	897063.33	775895.83	1630.00
165	897022.97	775957.04	1643.00
166	896992.70	775935.50	1642.00
167	896998.42	775920.12	1640.00
168	897002.44	775909.84	1638.00
169	897006.24	775900.11	1636.00
170	897011.46	775886.76	1634.00
171	897017.16	775872.18	1632.00
172	897023.33	775856.39	1630.00
173	896941.29	775953.47	1642.00
174	896947.39	775900.36	1640.00
175	896939.55	775897.81	1638.00
176	896934.77	775892.76	1636.00
177	896930.04	775970.55	1642.00
178	896925.03	775961.49	1642.00
179	896919.12	775952.83	1644.00
180	896914.04	775946.30	1645.00
181	896910.69	775936.61	1644.00
182	896909.45	775920.42	1642.00
183	896908.28	775911.05	1640.00
184	896907.82	775903.72	1638.00
185	896911.43	775888.02	1636.00
186	896915.63	775877.60	1634.00
187	896921.66	775858.06	1632.00
188	896941.88	775845.19	1630.00
189	896942.93	775831.99	1630.00
190	896880.23	775973.29	1642.00
191	896868.24	775965.14	1642.00
192	896813.26	776029.73	1642.00
193	896819.67	775976.58	1640.00
194	896839.44	775953.51	1638.00
195	896848.82	775904.27	1636.00
196	896875.47	775870.34	1634.00
197	896907.27	775842.94	1632.00
198	896775.36	775992.37	1640.00
199	896769.21	775980.86	1640.00
200	896766.79	775947.95	1640.00
201	896772.35	775957.79	1640.00
202	896782.49	775956.74	1640.00
203	896798.79	775934.07	1640.00
204	896809.57	775953.93	1640.00
205	896812.25	775933.06	1640.00
206	896822.85	775933.74	1638.00
207	896832.28	775938.12	1638.00
208	896725.31	775948.00	1640.00
209	896749.21	775960.20	1642.00
210	896777.00	775927.81	1639.00
211	896805.69	775921.51	1642.00
214	896771.80	775905.90	1640.00
215	896782.26	775899.25	1642.00
216	896773.96	775877.94	1642.00
217	896804.60	775898.62	1642.00
218	896794.77	775891.31	1644.00
219	896810.67	775875.67	1642.00
220	896819.98	775866.51	1640.00
221	896828.72	775857.91	1638.00
222	896838.24	775848.55	1636.00
224	896851.47	775835.54	1632.00
225	896863.16	775824.04	1630.00
226	896648.84	775708.40	1636.00

Reference No.	Control Point Coordinate Location		
	Northing	Easting	Elevation
227	896665.46	775703.29	1636.00
228	896666.94	775713.33	1637.00
229	896662.30	775726.84	1636.00
230	896683.57	775715.13	1636.00
231	896708.88	775718.58	1636.00
232	896723.58	775710.39	1636.00
233	896725.81	775723.57	1637.00
234	896725.47	775735.96	1636.00
235	896724.94	775755.14	1634.00
236	896740.10	775770.79	1634.00
240	896768.37	775808.11	1640.00
241	896777.76	775812.50	1638.00
242	896793.82	775817.38	1636.00
243	896806.52	775818.23	1634.00
244	896759.18	775776.63	1636.00
245	896769.21	775780.36	1638.00
249	896814.09	775800.90	1636.00
250	896821.03	775809.14	1634.00
251	896834.59	775820.40	1632.00
252	896838.01	775815.72	1632.00
253	896842.68	775811.42	1632.00
254	896752.45	775715.23	1636.00
257	896800.47	775739.12	1638.00
258	896804.48	775746.13	1640.00
259	896814.22	775760.97	1640.00
260	896818.52	775767.79	1638.00
261	896821.34	775778.12	1636.00
262	896827.27	775795.52	1634.00
263	896850.02	775717.00	1638.00
264	896860.75	775749.58	1640.00
265	896866.32	775766.49	1640.00
266	896870.43	775778.97	1638.00
267	896873.31	775787.72	1636.00
268	896875.92	775795.64	1634.00
269	896879.13	775805.41	1632.00
270	896882.56	775815.82	1630.00
271	896887.49	775696.36	1638.00
272	896895.78	775720.38	1640.00
273	896901.87	775738.04	1640.00
274	896905.55	775748.68	1638.00
275	896909.56	775761.01	1636.00
276	896914.23	775773.84	1634.00
277	896918.06	775784.94	1632.00
278	896921.77	775795.70	1630.00
279	896937.52	775720.06	1642.00
280	896954.74	775719.90	1643.00
281	896973.95	775708.69	1640.00
282	896970.43	775728.22	1642.00
283	896976.90	775731.21	1642.00
284	896966.77	775747.95	1640.00
285	896962.41	775757.48	1638.00
286	896958.01	775767.08	1636.00
287	896954.05	775775.74	1634.00
288	896949.14	775786.46	1632.00
289	896942.71	775800.50	1630.00
290	896991.86	775715.20	1640.00
291	896997.61	775726.08	1642.00
292	897004.13	775738.40	1644.00
293	897000.10	775751.94	1642.00
294	896996.20	775765.00	1640.00
295	896993.07	775775.51	1638.00
296	896989.59	775787.16	1636.00

Reference No.	Control Point Coordinate Location		
	Northing	Easting	Elevation
297	896986.26	775798.33	1634.00
298	896982.29	775811.66	1632.00
299	896977.45	775827.88	1630.00
300	897007.71	775751.14	1642.00
301	897010.92	775762.58	1640.00
302	897014.90	775776.79	1638.00
303	897018.17	775788.42	1636.00
304	897022.07	775802.35	1634.00
305	897025.02	775812.85	1632.00
306	897030.66	775832.96	1630.00
307	897023.82	775718.92	1644.00
308	897042.09	775698.51	1640.00
309	897043.55	775710.90	1642.00
310	897042.13	775717.34	1643.00
311	897044.95	775722.76	1642.00
312	897046.62	775736.98	1640.00
313	897047.83	775747.22	1638.00
314	897049.97	775765.40	1636.00
315	897051.82	775781.15	1634.00
316	897053.84	775798.34	1632.00
317	897056.61	775821.83	1630.00
318	897051.58	775715.76	1642.99
319	897063.72	775713.82	1644.00
320	897153.82	775695.76	1640.00
321	897177.29	775709.59	1642.00
322	897139.24	775737.14	1646.00
323	896613.65	775830.41	1638.00
324	896588.21	775834.42	1641.00
325	896550.88	775833.65	1638.00
326	896573.78	775781.49	1638.00
327	896563.99	775750.16	1636.00

NOTE:  
SEE SHEETS GR1 AND GR2 FOR POINT LOCATIONS

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY</b> ENGINEERING DIVISION			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN PROJECT</b> PCN 420.03.31			

**General Notes**

- Nothing contained in the contract documents shall create, nor shall be construed to create, any contractual relationship between the Consultant and the Contractor or any subcontractor.
- The Owner and their representative are not responsible for construction means, methods, techniques, sequences, or for safety precautions or programs utilized in connection with the work. The owner and their representative shall not be responsible for the Contractor's failure to carry out the work in accordance with the contract documents.
- Contractor shall provide all labor, materials, and equipment necessary to install the work indicated on the construction documents. The Contractor shall be responsible for careful site inspection, detailed review of the plans, sequencing and coordination with other contractors on site prior to any installation. Any discrepancies shall be brought to the attention of the owner in writing immediately.
- All equipment and materials not shown or specified on the plans or in the specifications but are required to be complete this installation shall be supplied by the contractor as a part of this contract work.
- Contractor shall comply with all local, state, and federal laws, codes and regulations applicable to the work covered by these plans and specifications.
- Contractor shall be responsible for complying with local codes governing dust control, hours of operation, and safety measures.
- All work and materials shall conform to the most current MAG standards and specifications as furnished by Maricopa County. All work and materials not in conformance with these amended specifications and details are subject to removal and replacement at the Contractor's expense.
- Contractor is responsible for obtaining and complying with all permits required to complete the work covered by these plans.
- Contractor shall verify the existing site conditions and installation conditions prior to bidding the work in these plans and specifications. Any discrepancies shall be brought to the attention of the owner in writing immediately.
- Contractor shall locate all survey marks, including bench marks and property lines, in order that the exact lines of construction limits and grades may be determined.
- Contractor shall protect all existing or temporary topographic traverse points and bench marks until the construction bench marks and baselines are established and referenced by the Contractor. Any project control points, which may be lost or destroyed shall be replaced at the contractor's expense.
- Contractor shall verify all building setback lines, right-of-way lines, easement lines, visibility lines, etc., in the field. Contractor shall report any discrepancies to the owner in writing prior to construction.
- The information and boundary locations shown are assumed to be accurate. Contractor shall report in writing any discrepancies to the owner. Any need for work outside the limit of work boundary shall be confirmed in writing by the owner prior to performing work outside the limit of work boundary.
- Contractor shall field verify the location of all existing trees. Conflicts or discrepancies shall be brought to the attention of the owner in writing immediately and prior to proceeding with work.
- Contractor shall verify all conditions at the job site and notify the owner of dimensional errors, omissions, or discrepancies before beginning or fabricating any work. Contractor is responsible to obtain clarification before proceeding further with any other related work.
- Contractor should assume that the site will be within .30 foot of final grades on indicated improvement plans. The landscape and irrigation contractor shall verify and accept these rough grades prior to starting any landscape and irrigation work.
- Any discrepancies found between plan dimensions and actual field conditions shall be reported in writing immediately to the owner. Written dimensions shall govern over scaled dimensions.
- Contractor shall verify all quantities prior to final bid. In case of any discrepancies, graphically shown quantities shall take precedence. The Contractor shall notify the owner in writing of any discrepancies prior to final bid.
- Prior to initiating these landscape improvements, the Contractor must schedule a pre-construction meeting on site with the approval of the owner. The owner or their representative must be present. The purpose of this meeting is to resolve any existing site conditions that may be in conflict with these landscape construction documents and therefore impact the installation of any of these proposed improvements.
- Contractor shall take all precautionary measures necessary to protect existing improvements from damage. All such improvements or structures damaged by the Contractor's operations shall be repaired or reconstructed satisfactorily to required standards and the owner at no expense to the owner.
- Prior to commencement of any work, the Contractor shall be responsible for becoming familiar with the locations of all utilities, pipes, and structures. The owner assumes no responsibility for the utilities or structures not shown, or not in the location shown on the drawings. Contractor shall verify the exact location of utilities prior to construction. Contractor shall take sole responsibility for any costs incurred due to damages to said utilities caused as a result of the Contractor's work. Forty-eight hours prior to start of construction the Contractor shall contact Blue Stakes (800-227-2600) to verify locations and depths of underground utilities that may be affected by this work. The Contractor shall use extreme caution when working over or near the existing gas mains, sewer lines, water lines, communication lines, and electrical lines. If any underground or above ground construction is located as to significantly hinder installation or function of the landscape or irrigation system, the owner shall be notified immediately.
- Contractor shall protect any existing trees and shrubs unless they are designated to be destroyed. Construction equipment will not operate, park, or be stored under canopies of existing vegetation. Any impacts, damage or death to existing vegetation will require replacement in like size and kind to the satisfaction of the owner or their representative.
- Contractor shall be responsible for compensating the owner for any additional coordination and/or design changes made as a result of deviation by the Contractor from the plans and specifications or due to errors, faulty material, or faulty workmanship.
- All areas disturbed during construction to be fine graded. Undisturbed areas damaged or disturbed during construction shall be restored to their original condition at the Contractor's expense.

**General Notes Cont.**

- Contractor shall be responsible for caliche and hard rock removal at no additional cost to the owner.
- Miscellaneous equipment to be removed shall be relocated as per the owner's instructions. Paving to be removed shall be backfilled with topsoil to meet surrounding existing grades.
- Trees and shrubs to be removed shall be flagged before removal with red ribbon and reviewed by the owner or their representative.
- Contractor is responsible for removal and appropriate disposal of all debris, construction waste, etc. from the site.
- The quantities and site conditions shown on these plans are for informational purposes only. Contractor shall verify the actual quantities and site conditions prior to bidding the work covered by these plans and specifications.
- The job site, at the completion of the construction and prior to final review shall be cleared of any debris or spoil resulting from the construction.
- All materials required shall be of a grade and quality specified and consistent with accepted industry standards.
- Contractor shall provide owner with all warranty information, instruction manuals and any other product information for all new equipment or machinery installed prior to the request for substantial completion review by the owner or their representative.

**Grading Notes**

- Contractor shall fine grade all areas to be planted or landscaped. Fine grading shall include the removal of debris, rocks, etc. from the sites, and ensure positive drainage in all areas.
- Contractor shall be responsible for all finished grades within the landscape and shall determine with the general contractor prior to final bids the extent of rough grading and/or fine grading to be established by others.
- Contractor shall provide positive drainage away from all buildings, walls, utility equipment, etc., in all conditions.
- Contractor shall verify the correct location of all underground utilities in the field prior to any grading. (See general note 21.)
- Contractor shall meet all existing grades uniformly with a smooth transition at project boundaries. Finish grades shall be 1" below the top transition of adjacent walks and headers unless otherwise noted on plans.
- All landforms, mounds, and swales shall be graded to a smooth, flowing, rounded surface providing positive drainage and visual landform continuity. Rough grade is to be reviewed and approved by the owner or their representative prior to the top dressing to establish final grade.

**Landscape / Planting Notes**

- Topsoil/desert pavement shall be graded by the Contractor to eliminate rough, low, or soft areas and to ensure positive drainage.
- Contractor shall fine grade and cover with an approved top dressing as specified in the plans or specifications all areas disturbed by construction.
- Existing desert pavement (top 6 inches) within the limits of grading, shall be stockpiled and redistributed, as specified in the plans. Two-inch minimum depth throughout. Contractor is responsible for the salvage, stockpile, and spreading of the materials.
- All plant material other than trees, shall conform grading, type, etc. as set forth in the American Standard for Nursery Stock by the American Association of Nurserymen. All trees shall conform to the current Arizona Nursery Association Tree Specifications and MAG spec 735.7. Should any conflicts in the specifications occur, the Arizona Nursery Association's specifications shall prevail.
- All plant material shall be healthy, vigorous, well branched, and densely foliated (when in leaf) as is typical for the species. They shall have healthy, well-developed root systems (not pot bound), a normal habit of growth consistent with industry standards; and free of any bruises, cuts, or other abnormalities.
- Quantities shown on plant list are for the Contractor's convenience only and are not guaranteed to be accurate. In the event of a discrepancy between quantities shown on the plan and quantities shown on the plant list, the quantities on the plan shall apply.
- No plant substitutions, type, size, or quantity deviations, from the approved landscape plans, without prior written approval from the owner.
- The owner or their representative reserves the right to reject any selection of plant material that does not satisfy the intent of the landscape design based on size, shape, evidence of stress, or improper care both at the nursery and on the site following delivery and unloading of plant material.
- All existing trees and shrubs designated to remain that are damaged or destroyed will be replaced in kind by the Contractor.
- All planting shall be in accordance with standard American Association of Nurserymen procedures and specifications unless otherwise noted on these plans.
- Planting shall be aligned to walks unless otherwise shown on these plans. Spacing shall be adjusted as necessary, subject to review by owner or their representative.
- Trees shall be installed at a minimum of 5' from back of curb, edge of walk, or edge of paving; at a minimum of 10' from any light pole or fire hydrant; and at a minimum of 3' from sewer and water lines.
- Shrubs shall be installed at a minimum of 2' from back of curb, edge of walk, or edge of paving.

**Landscape / Planting Notes Cont.**

- All plant material locations shall be staked in the field by the Contractor and approved by the owner or their representative prior to installation.
- Contractor shall place plants for best appearance for review and final orientation. Planting shall not be started until final subgrade has been established and approved by the owner or their representative. Under no condition shall work be done if the weather or soil conditions are not satisfactory.
- The irrigation system is to be fully operational and effective prior to the installation of any plant material.
- All plant materials must be maintained in health and vigor by the Contractor and be allowed to attain natural size and shape in accordance with the originally approved landscape plan.

**Irrigation Notes**

- Contractor shall be responsible for all irrigation coverage to all plant material specified.
- Irrigation plan is schematic. All piping, valves, controls, outlet devices (sprinklers, emitters, etc.), and related material shall be installed per the manufacturer's specifications, ASTM standards, the irrigation system specifications and details and shall be located as shown on the details. Contractor shall report any discrepancies between actual and proposed site conditions to the owner and their representative. Do not proceed with work until said discrepancies are resolved.
- There shall be no irrigation substitutions, type, size, or quantity deviations from the irrigation plans without prior approval from the owner or their representative.
- The mainline and lateral pipe, valves, etc. are shown schematically and shall be installed within the landscape areas.
- Contractor shall coordinate irrigation installation with the work of other contractors and protect the work of other contractors/trades. Contractor is responsible for all damages resulting from his actions.
- Contractor shall verify that the work of other contractors/trades is sufficiently complete to allow commencement of irrigation installation prior to beginning work.
- Contractor shall coordinate installation of all irrigation sleeving with other contractors prior to construction of pavement, walks, and other hardscape features.
- Contractor shall verify location of all underground utilities prior to installation.
- Contractor shall be responsible for all construction methods, coordination, and sequencing during construction to maintain all irrigation requirements.
- Contractor shall field locate all existing irrigation components to be retained, salvaged, or relocated.
- If it becomes necessary to relocate existing sprinkler heads, valves, piping, etc. due to construction interference, the Contractor shall obtain prior approval from the owner or their representative.
- Contractor shall be responsible for replacing (in kind, or as approved by the owner) all existing irrigation equipment disturbed and/or damaged during construction.
- The points of connection (POC) will be specified on irrigation plans. The Contractor shall coordinate POC and verify compliance with all applicable local plumbing codes.
- The irrigation system is designed for a static pressure of 60 psi. Contractor shall provide the owner in writing a static pressure reading before starting any work. Contractor shall field verify pressure at backflow preventer location prior to ordering materials or starting any irrigation installation and notify owners representative of any difference from stated pressure. If the static pressure is more than 85 psi, install a Wilkins 91 series (or approved equal) and set at 75 psi. If contractor fails to notify owners representative the contractor assumes full responsibility for any system alterations as directed by the owner and their representative.
- An existing automatic controller will provide control of the irrigation system. Low-voltage (24 volt) remote control wiring from the controller to the solenoid valves will be UL approved direct burial single-strand copper wire, AWG-UF-600 volt common wire to be white. Wire shall be no smaller than 14 gauge. All runs of wire to be continuous with no splices (except in the valve boxes where valves are located). Runs shall not exceed 1500 feet in length for 14 gauge and 2000 feet in length for 12 gauge. DC latching solenoids of the type specified on the drawings will be used at the valves to operate the controller.
- All electrical connections shall be made at the remote control valve boxes, controller enclosures and valve boxes specifically for electrical connections.
- All connections to remote control valves and all splices shall be made with dry-6 direct bury splice kits as manufactured by Rain Bird Pentite connectors or approved equal unless otherwise noted.
- All piping to be schedule 40 PVC, with solvent welded joints unless otherwise noted.
- All PVC solvent weld fittings shall be Lasco, Spears, Dura or approved equal.
- The irrigation mainline shall be schedule 40 PVC pipe with schedule 80 fittings unless otherwise noted. Drip line laterals shall be 3/4" diameter, unless otherwise noted. Control wiring shall be adjacent to the mainline.
- Install all mainlines, laterals and valve wiring as detailed.
- Backfill all trenches with clean fill free of debris.
- Main line piping and lateral piping may be placed in same trench when possible. Main line piping shall be installed in bottom of trench with laterals above as detailed.

**Irrigation Notes Cont.**

- All threaded joints shall be wrapped with Teflon tape unless otherwise specified by the manufacturer. Use liquid Teflon on metal pipe threads only.
- Install all mainline isolation valves in round plastic valve boxes as detailed.
- All valve manifolds shall be serviceable through minimum 10" valve boxes as specified.
- Where possible, place the ball valves in the same valve box as the valves, which they serve.
- Install all remote control valves at height indicated on details, as high as possible but allowing approximately 1" clearance between bottom of valve box lid and flow control handle on remote control valve.
- All valve covers, vault boxes, etc. shall be placed so the edges are parallel or perpendicular to adjacent hard edges. Top of all boxes is to be flush with grade. Top surface of boxes shall be installed so that a smooth surface is created in relation to existing grades.
- Valve boxes shall be tan color unless otherwise noted.
- Flushing of all lines prior to installation and emitters is required.
- Sleeving to be installed wherever pipes run under hardscape features such as sidewalks, driveways, streets, etc.
- No PVC piping shall be located under tree rootballs.
- Any existing through irrigation requirements shall be maintained. The Contractor shall revise any existing irrigation as needed to provide 100% coverage to the existing irrigated landscape.
- The system shall be zoned and programmed to allow separate watering of trees and shrubs.
- Contractor shall complete any initial punch list items and obtain approval from the purchaser prior to receiving the Certificate of Substantial Completion. Contractor shall submit written request for final punch list 1-week prior to end of maintenance/establishment period.
- Prior to the acceptance of irrigation system by purchaser, a person qualified to represent the irrigation Contractor shall demonstrate the system and prove its performance, and all work shall have been completed, tested, adjusted and placed in operation.
- Contractor shall provide the owner with the following material upon completion of the project:
  - Two wrenches for disassembly and adjusting of each type of valve supplied.
  - Two quick coupler valve keys with matching hose bibbs and shut-off valve and 2 matching hose swivels for each quick coupling valve type.
  - Two isolation valve operating handles.
  - Two copies of the parts list and manufacturer's catalog showing performance, quality and function of each item of equipment in the system.
  - Written instructions for operation and maintenance of the system.
  - An "as-built" plan.
  - 2-week watering schedule.

The working drawings are to be used for the construction only.  
 602-263-1100  
 Blue Stakes  
 1000 N. 10th Street  
 Phoenix, AZ 85006

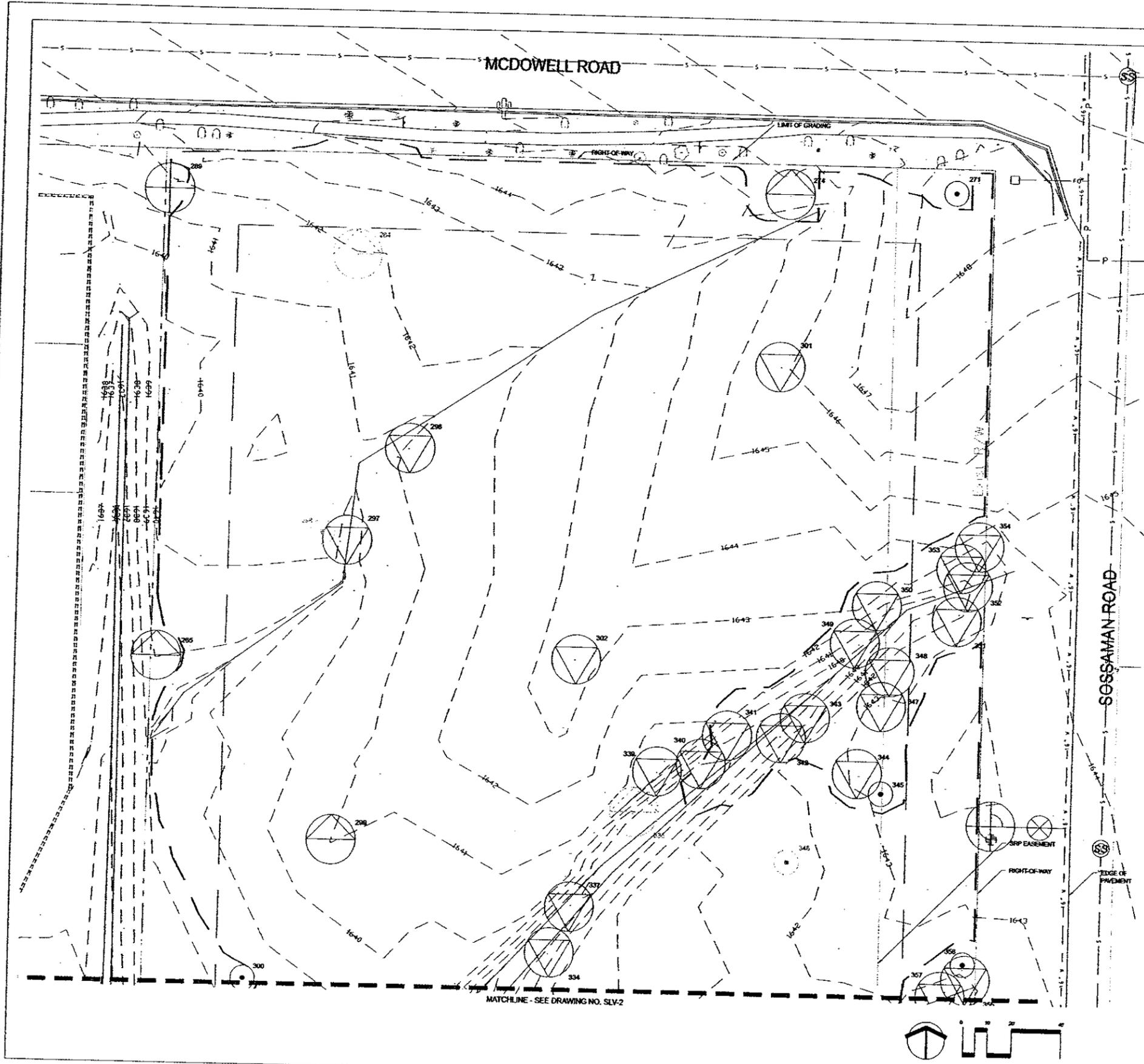
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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN</b> <b>FCD PROJECT NO. 2004C052</b>			
		BY	DATE
	DESIGNED	CAG	7/31/06
	DRAWN	CAG	7/31/06
	CHECKED	SCP	7/31/06
DRAWING NO.	NOTES		SHEET OF
LN-1			62 73

**LANDSCAPE GENERAL NOTES**

1. LANDSCAPE CONTRACTOR SHALL CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION AND SHALL BE RESPONSIBLE FOR THE FOLLOWING:
  - A. DAMAGES TO SUCH UTILITIES CAUSED AS A RESULT OF THE CONTRACTOR'S ACTIVITIES
  - B. DAMAGES TO EXISTING WALKS, WALLS, DRIVES, CURBS, ETC.
  - C. INSPECTING THE SITE IN ORDER TO BE FULLY AWARE OF EXISTING CONDITIONS PRIOR TO SUBMITTING A BID.
2. INSTALLATION OF ALL LANDSCAPE AND IRRIGATION MATERIALS SHALL COMPLY WITH SECTIONS 424, 425, 757, AND 795 OF THE MAG STANDARD SPECIFICATIONS AS AMENDED BY THE CITY OF MESA IN THE CURRENT EDITION OF THE ENGINEERING PROCEDURES MANUAL, LANDSCAPE AND IRRIGATION STANDARDS.
3. CONTRACTOR SHALL REPAIR ANY DAMAGE MADE TO THE EXISTING SPRINKLER SYSTEM TO THE SATISFACTION OF THE CITY AT NO ADDITIONAL COST TO THE CITY.
4. LANDSCAPE REMOVAL IS A NON-PAY ITEM UNLESS OTHERWISE NOTED.
5. ALL EXISTING WEEDS, DEBRIS, ETC. SHALL BE REMOVED FROM PROJECT AREA AND DISPOSED OF PROPERLY OFF THE SITE AT THE CONTRACTOR'S EXPENSE (SCARIFY EXISTING SUBGRADE, MINIMUM 12" DEPTH).
6. ALL PLANT MATERIAL, OTHER THAN TREES, SHALL CONFORM TO GRADING, TYPE, ETC. AS SET FORTH IN THE AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN. ALL TREES SHALL CONFORM TO THE CURRENT ARIZONA NURSERY ASSOCIATION TREE SPECIFICATIONS AND MAG SPEC 795.7. SHOULD ANY CONFLICTS IN THE SPECIFICATIONS OCCUR, THE ARIZONA NURSERY ASSOCIATION'S SPECIFICATIONS SHALL PREVAIL.
7. CITY RESERVES THE RIGHT TO INSPECT SHRUBS AND CONTAINERED TREES FOR CONDITION OF ROOT BALLS. FOR ANY SUCH INSPECTIONS WHICH MAY DESTROY ROOT BALL, CONTRACTOR SHALL SUPPLY ADDITIONAL PLANT AT NO COST TO CITY.
8. PLANT PITS SHALL BE INSPECTED BY CITY PRIOR TO PLANTING BY THE CONTRACTOR BY REQUESTING AN INSPECTION 48 HOURS IN ADVANCE.
9. ROUGH AND FINE GRADING TO ESTABLISH UNIFORM SMOOTH GRADE IS INCLUDED IN THIS PROJECT.
10. SOIL TEST FOR FERTILITY AND ADDITIVE RECOMMENDATIONS SHALL BE COMPLETED BY CONTRACTOR TO DETERMINE IF ADDITIVES ARE REQUIRED. CONTRACTOR SHALL PROVIDE COPY OF SOIL TEST RESULTS FOR REVIEW AND APPROVAL TO ENGINEERING INSPECTOR AT LEAST SEVEN DAYS PRIOR TO ANTICIPATED PLANTING. AFTER APPROVAL BY THE CITY, THE CONTRACTOR SHALL PROVIDE AND INCORPORATE ANY ADDITIVES REQUIRED PRIOR TO OR AT TIME OF PLANTING.
11. CONTRACTOR SHALL STAKE TREE AND SHRUB LOCATIONS. STAKES SHALL BE MARKED WITH PLANT NAME OR PLANT LEGEND ITEM NUMBER FROM PLANS.
12. ALL EXISTING (GAS, ELECTRIC, WATER, ETC.) COVERS AND BOXES SHALL REMAIN UNCOVERED. CONTRACTOR TO ADJUST TO FINAL GRADE AS NECESSARY. NPT UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING THE UNDERGROUND SPRINKLER SYSTEMS IN ADVANCE OF CONSTRUCTION.
14. WHERE CALICHE IS ENCOUNTERED IN PLANT PITS, DEPTH AND WIDTH OF PIT SHALL BE INCREASED BY ONE-THIRD (1/3) OVER SPECIFICATION (EXCLUDING TALL POTS - SEE DETAIL), AND A LIQUID PENETRATOR, "AL-KALICHE" OR EQUAL, SHALL BE INCORPORATED FOR EACH PIT PER MANUFACTURER'S RECOMMENDATIONS.
15. PROJECT RECORD (AS-BUILT) DRAWINGS FOR IRRIGATION SYSTEM:
  - A. MAINTAIN ON SITE AND SEPARATE FROM DOCUMENTS USED FOR CONSTRUCTION, ONE COMPLETE SET OF CONTRACT DOCUMENTS AS PROJECT RECORD DOCUMENTS. KEEP DOCUMENTS CURRENT. DO NOT PERMANENTLY COVER WORK UNTIL AS-BUILT INFORMATION IS RECORDED.
  - B. RECORD PIPE AND WIRING NETWORK ALTERATIONS. RECORD WORK WHICH IS INSTALLED DIFFERENTLY THAN SHOWN ON THE CONSTRUCTION DRAWINGS. RECORD ACCURATE REFERENCE DIMENSIONS, MEASURED FROM AT LEAST TWO PERMANENT REFERENCE POINTS, OF EACH IRRIGATION SYSTEM VALVE, EACH BACKFLOW PREVENTION DEVICE, EACH CONTROLLER OR CONTROLLER UNIT, EACH SLEEVE END, EACH STUB-OUT FOR FUTURE PIPE OR WIRING CONNECTIONS, AND OTHER IRRIGATION COMPONENTS ENCLOSED WITHIN A VALVE BOX.

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NO	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT          OF MARICOPA COUNTY          ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN          AND STORM DRAIN DESIGN          FCD PROJECT NO. 2004C052</b>			
		BY	DATE
	DESIGNED		
	DRAWN		
	CHECKED	SCP	4/7/06
DRAWING NO.	CITY OF MESA		SHEET OF
LN-2	NOTES		63 73



**Salvage Plant List**

SYMBOL	BOTANICAL NAME COMMON NAME	SALVAGE	PROTECT	DESTROY	TOTAL	PERCENT SALVAGE/PROTECT
	Carnegiea gigantea Saguaro	2	4	0	6	100%
	Parkinsonia floridum Blue Palo Verde	0	1	0	1	100%
	Parkinsonia microphyllum Foot hills Palo Verde	0	14	8	22	64%
	Olneya tesota Ironwood	2	2	1	5	80%

Plant ID	P = Protect in Place D = Destroy S = Salvage			Caliper	Height	Spread
	P, D, S	Botanical Name				
246	P	Parkinsonia microphyllum		10"	8'	10'
247	P	Parkinsonia microphyllum		3"	5'	5'
248	D	Parkinsonia microphyllum		4"	7'	5'
249	D	Parkinsonia microphyllum		14"	8'	8'
250	S	Carnegiea gigantea			35'	
251	P	Olneya tesota		18"	12'	12'
271	P	Carnegiea gigantea			22'	
274	P	Olneya tesota		18"	12'	8'
284	S	Olneya tesota		12"	10'	7'
289	P	Parkinsonia floridum		7"	9'	9'
296	D	Parkinsonia microphyllum		20"	8'	7'
297	D	Parkinsonia microphyllum		18"	8'	7'
298	S	Carnegiea gigantea			8'	
299	D	Olneya tesota		12"	8'	10'
300	P	Carnegiea gigantea			7'	
301	D	Parkinsonia microphyllum		10"	15'	12'
302	D	Parkinsonia microphyllum		14"	20'	15'
303	D	Parkinsonia microphyllum		12"	12'	15'
304	P	Parkinsonia microphyllum		14"	12'	15'
305	P	Carnegiea gigantea			16'	
306	P	Olneya tesota		30"	15'	20'
317	P	Parkinsonia microphyllum		12"	12'	15'
318	P	Parkinsonia microphyllum		14"	15'	20'
319	P	Parkinsonia microphyllum		8"	15'	20'
320	P	Parkinsonia microphyllum		8"	12'	12'
321	P	Parkinsonia microphyllum		12"	20'	25'
322	P	Parkinsonia microphyllum		16"	14'	16'
323	P	Parkinsonia microphyllum		8"	10'	12'
324	P	Parkinsonia microphyllum		18"	12'	10'
325	P	Parkinsonia microphyllum		16"	15'	15'
326	P	Parkinsonia microphyllum		30"	12'	18'
327	P	Parkinsonia microphyllum		36"	12'	15'
328	P	Olneya tesota		22"	15'	15'
329	P	Parkinsonia microphyllum		14"	16'	18'
332	S	Olneya tesota		48"	15'	16'
333	D	Parkinsonia microphyllum		14"	12'	15'
334	D	Parkinsonia microphyllum		12"	15'	15'
335	S	Carnegiea gigantea			16'	
336	S	Carnegiea gigantea			20'	
337	D	Parkinsonia microphyllum		12"	15'	12'
338	S	Olneya tesota		18"	16'	18'
339	D	Parkinsonia microphyllum		12"	15'	20'
340	D	Parkinsonia microphyllum		8"	10'	12'
341	P	Parkinsonia microphyllum		24"	10'	18'
342	P	Parkinsonia microphyllum		4"	6'	6'
343	P	Parkinsonia microphyllum		6"	8'	8'
344	P	Parkinsonia microphyllum		14"	16'	20'
345	P	Carnegiea gigantea			10'	
346	S	Carnegiea gigantea			20'	
347	P	Parkinsonia microphyllum		12"	15'	15'
348	P	Parkinsonia microphyllum		10"	12'	15'
349	P	Parkinsonia microphyllum		4"	6'	12'
350	P	Parkinsonia microphyllum		12"	15'	16'
351	P	Parkinsonia microphyllum		16"	20'	16'
352	P	Parkinsonia microphyllum		8"	15'	15'
353	P	Parkinsonia microphyllum		8"	15'	15'
354	P	Parkinsonia microphyllum		8"	12'	12'
355	P	Parkinsonia microphyllum		18"	25'	30'
356	P	Carnegiea gigantea			25'	
357	P	Parkinsonia microphyllum		12"	12'	12'

- Notes:**
- Contractor shall salvage, protect in place, or destroy all plant material per the plans and specifications.
  - Contractor shall install protective fencing as shown on the plans, Detail 7 Sheet LP-4 and per the specifications.
  - Plant material to be destroyed shall be chipped/mulched and redistributed on the site per the plans and specifications.
  - Contractor shall salvage and stockpile the top 6-inches of desert pavement (topsoil) within the limits of grading and replace on-site following the grading per the plans and specifications.
  - Contractor shall salvage and replant all existing cacti (Echinocactus sp., Mammillaria, Cholla sp., Opuntia sp.) within the limits of disturbance of the basin site. Cacti to be salvaged shall be tagged with red tape and approved by engineer prior to salvage. Salvaged cacti shall be evenly planted throughout the site.

- Legend**
- - - - - Existing Intermediate Contour
  - - - - - Existing Index Contour
  - - - - - Right-of-Way
  - - - - - Protective Fencing
  - - - - - Limit of Grading

602-263-1100  
602-263-1100  
602-263-1100

3		BY	DATE
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1			
NO.	REVISION		

**FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
ENGINEERING DIVISION**

**MCDOWELL ROAD BASIN  
AND STORM DRAIN DESIGN  
FCD PROJECT NO. 2004C052**

	BY	DATE	
	DESIGNED	SEH	7/31/06
	DRAWN	CAG	7/31/06
	CHECKED	SCP	7/31/06

**edp**

DRAWING NO. SLV-1	SALVAGE PLAN	SHEET OF 64 73
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**Salvage Plant List**

SYMBOL	BOTANICAL NAME	COMMON NAME	SALVAGE	PROTECT	DESTROY	TOTAL	PERCENT SALVAGE/PROTECT
	<i>Carnegiea gigantea</i>	Saguaro	3	1	0	4	100%
	<i>Parkinsonia floridum</i>		0	0	0	0	0%
	<i>Parkinsonia microphyllum</i>		0	15	4	19	79%
	<i>Olneya tesota</i>	Ironwood	1	2	0	3	100%

Plant ID	P	D	S	Botanical Name	Caliper	Height	Spread
246	P			<i>Parkinsonia microphyllum</i>	10"	8"	10"
247	P			<i>Parkinsonia microphyllum</i>	3"	5"	5"
248	D			<i>Parkinsonia microphyllum</i>	4"	7"	5"
249	D			<i>Parkinsonia microphyllum</i>	14"	8"	8"
250	S			<i>Carnegiea gigantea</i>		35"	
265	P			<i>Olneya tesota</i>	18"	12"	12"
271	P			<i>Carnegiea gigantea</i>	18"	22"	
274	P			<i>Olneya tesota</i>	18"	12"	8"
284	S			<i>Olneya tesota</i>	12"	10"	7"
289	P			<i>Parkinsonia floridum</i>	7"	9"	9"
296	D			<i>Parkinsonia microphyllum</i>	20"	8"	7"
297	D			<i>Parkinsonia microphyllum</i>	18"	8"	7"
298	S			<i>Carnegiea gigantea</i>		5"	
299	D			<i>Olneya tesota</i>	12"	8"	10"
300	P			<i>Carnegiea gigantea</i>		7"	
301	D			<i>Parkinsonia microphyllum</i>	10"	15"	12"
302	D			<i>Parkinsonia microphyllum</i>	14"	20"	15"
303	D			<i>Parkinsonia microphyllum</i>	12"	12"	15"
304	P			<i>Parkinsonia microphyllum</i>	14"	12"	15"
305	P			<i>Carnegiea gigantea</i>		16"	
306	P			<i>Olneya tesota</i>	30"	15"	20"
317	P			<i>Parkinsonia microphyllum</i>	12"	12"	15"
318	P			<i>Parkinsonia microphyllum</i>	14"	15"	20"
319	P			<i>Parkinsonia microphyllum</i>	8"	15"	20"
320	P			<i>Parkinsonia microphyllum</i>	8"	12"	12"
321	P			<i>Parkinsonia microphyllum</i>	12"	20"	25"
322	P			<i>Parkinsonia microphyllum</i>	16"	14"	16"
323	P			<i>Parkinsonia microphyllum</i>	8"	10"	12"
324	P			<i>Parkinsonia microphyllum</i>	18"	12"	10"
325	P			<i>Parkinsonia microphyllum</i>	16"	15"	15"
326	P			<i>Parkinsonia microphyllum</i>	30"	12"	18"
327	P			<i>Parkinsonia microphyllum</i>	32"	12"	15"
328	P			<i>Olneya tesota</i>	22"	15"	15"
329	P			<i>Parkinsonia microphyllum</i>	14"	16"	18"
332	S			<i>Olneya tesota</i>	48"	15"	16"
333	D			<i>Parkinsonia microphyllum</i>	14"	12"	15"
334	D			<i>Parkinsonia microphyllum</i>	12"	15"	15"
335	S			<i>Carnegiea gigantea</i>		16"	
336	S			<i>Carnegiea gigantea</i>		20"	
337	D			<i>Parkinsonia microphyllum</i>	12"	15"	12"
338	S			<i>Olneya tesota</i>	18"	16"	18"
339	D			<i>Parkinsonia microphyllum</i>	12"	15"	20"
340	D			<i>Parkinsonia microphyllum</i>	8"	10"	12"
341	P			<i>Parkinsonia microphyllum</i>	24"	10"	18"
342	P			<i>Parkinsonia microphyllum</i>	4"	6"	6"
343	P			<i>Parkinsonia microphyllum</i>	6"	8"	8"
344	P			<i>Parkinsonia microphyllum</i>	14"	16"	20"
345	P			<i>Carnegiea gigantea</i>		10"	
346	S			<i>Carnegiea gigantea</i>		20"	
347	P			<i>Parkinsonia microphyllum</i>	12"	15"	15"
348	P			<i>Parkinsonia microphyllum</i>	10"	12"	15"
349	P			<i>Parkinsonia microphyllum</i>	4"	6"	12"
350	P			<i>Parkinsonia microphyllum</i>	12"	15"	16"
351	P			<i>Parkinsonia microphyllum</i>	16"	20"	16"
352	P			<i>Parkinsonia microphyllum</i>	8"	15"	15"
353	P			<i>Parkinsonia microphyllum</i>	8"	15"	15"
354	P			<i>Parkinsonia microphyllum</i>	8"	12"	12"
355	P			<i>Parkinsonia microphyllum</i>	18"	25"	30"
356	P			<i>Carnegiea gigantea</i>		25"	
357	P			<i>Parkinsonia microphyllum</i>	12"	12"	12"

- Note:
- Contractor shall salvage, protect in place, or destroy all plant material per the plans and specifications.
  - Contractor shall install protective fencing as shown on the plans, Detail 7 Sheet LP-4 and per the specifications.
  - Plant material to be destroyed shall be chipped/mulched and redistributed on the site per the plans and specifications.
  - Contractor shall salvage and stockpile the top 6-inches of desert pavement (topsoil) within the limits of grading and replace on-site following the grading per the plans and specifications.
  - Contractor shall salvage and replant all existing cacti (*Echinocactus* sp., *Mammillaria*, *Cholla* sp., *Opuntia* sp.) within the limits of disturbance of the basin site. Cacti to be salvaged shall be tagged with red tape and approved by engineer prior to salvage. Salvaged Cacti shall be evenly planted throughout the site.

602-263-1100  
 24-Hour Service  
 CALL COLLECT

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NO.	REVISION	BY	DATE

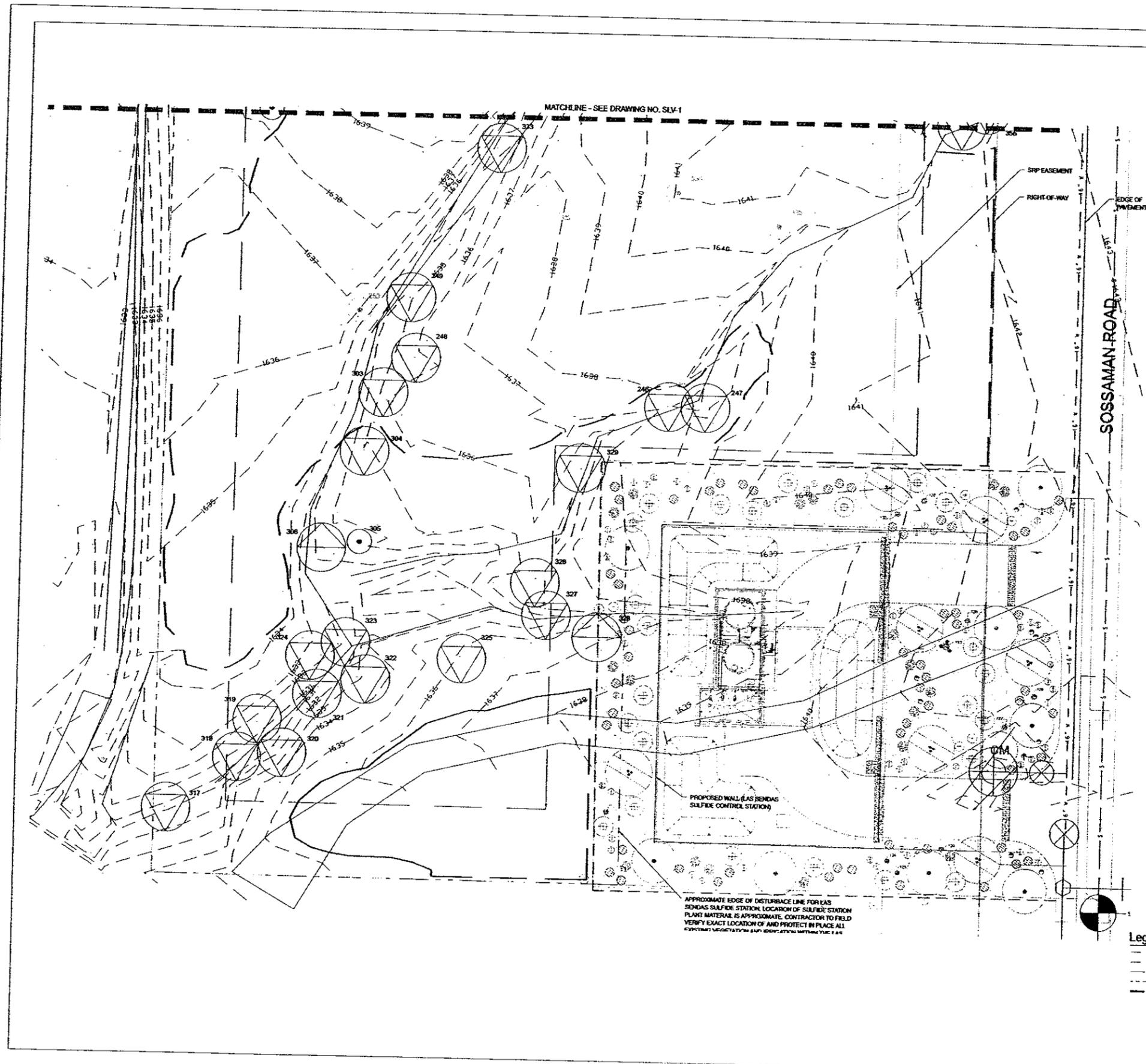
FLOOD CONTROL DISTRICT  
 OF MARICOPA COUNTY  
 ENGINEERING DIVISION

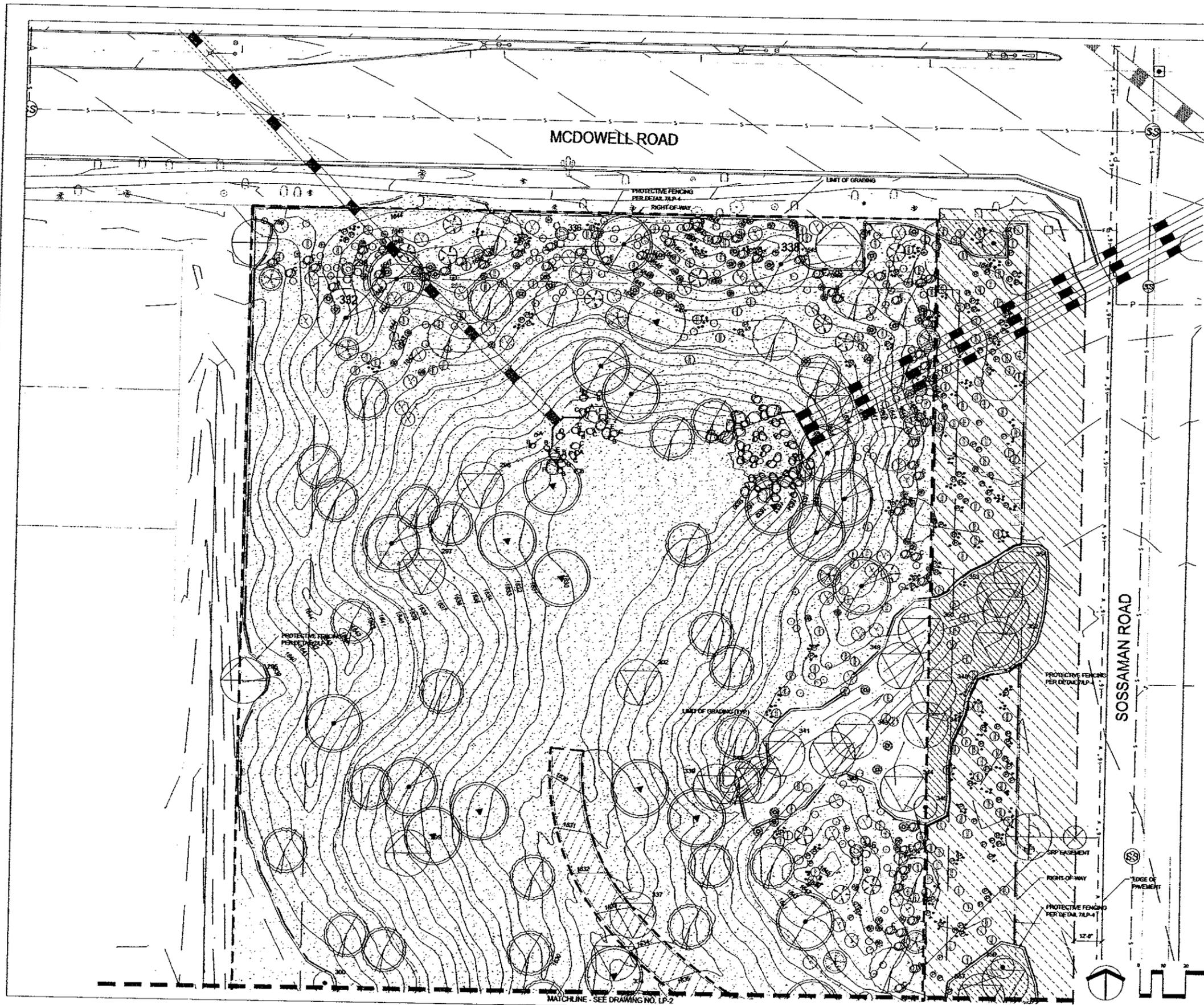
MCDOWELL ROAD BASIN  
 AND STORM DRAIN DESIGN  
 FCD PROJECT NO. 2004C052

DESIGNED	BY	DATE
DRAWN	SEH	7/31/06
CHECKED	CAG	7/31/06
	SCP	7/31/06

DRAWING NO. SLV-2  
 SHEET OF 65 73

- Legend**
- Existing Intermediate Contour
  - Existing Index Contour
  - Right-of-Way
  - Protective Fencing per Detail
  - Limit of Grading





**Plant List:**

SYMBOL	BOTANICAL NAME COMMON NAME	SIZE	CAL.	QTY.	REMARKS
<b>CONTAINER TREES</b>					
	Olive tree	15 GAL.	.75"	2	multi-trunk
	Parthenocle microphyllum Footbills Palo Verde	15 GAL.	.50"	12	multi-trunk
	Prosopis juliflora Velvet Mesquite	15 GAL.	.75"	1	multi-trunk
<b>PALM POT TREES</b>					
	Olive tree	-	-	12	-
	Parthenocle microphyllum Footbills Palo Verde	-	-	25	-
	Prosopis juliflora Velvet Mesquite	-	-	10	-
<b>SHRUBS</b>					
	Ambrosia deltoidea Burrage	1 GAL.	-	99	-
	Encelia berlandieri Brittishbush	1 GAL.	-	171	-
	Ephedra nevadensis Mormon Tea	5 GAL.	-	30	-
	Juskea californica Chuparosa	5 GAL.	-	33	-
	Larrea tridentata Creosote	5 GAL.	-	42	-
	Zizyphus obtusifolia Greylorn	5 GAL.	-	9	-
<b>CACTI / ACCENTS</b>					
	Ferocactus sp. Screw Cactus	5 GAL.	-	13	-
	Opuntia venicolaris Staghorn Cholla	5 GAL.	-	13	-
	Palmetto sp. Paper Flower	1 GAL.	-	114	-
	Zinnia sp. Desert Zinnia	1 GAL.	-	352	-

**SALVAGED PLANT MATERIAL**

	Olive tree	AS SALVAGED FROM SITE (SEE SALVAGE PLANS)	2	-
	Carnegiea gigantea Saguaro	AS SALVAGED FROM SITE (SEE SALVAGE PLANS)	4	(64 LF)

Salvaged Plant Material Note:  
1. Salvage cacti (Echinocactus sp., Mamillaria, Cholla sp., Opuntia sp.) shall be evenly placed throughout the site, excluding the SRP Right-of-Way.

**Existing Plant Material to be Protected in Place:**

SYMBOL	BOTANICAL NAME COMMON NAME	SYMBOL	BOTANICAL NAME COMMON NAME
	Carnegiea gigantea Saguaro		Parthenocle floridum Blue Palo Verde
	Olive tree		Parthenocle microphyllum Footbills Palo Verde

**Inert Materials**

SYMBOL	Description	SYMBOL	Description
	Desert Pavement with Hydrated Mts A		Operation and Maintenance Road See Detail SLP-4
	Hydrated Mts A		Limit of Desert Pavement
	Desert Pavement with Hydrated Mts B		Limit of Hydrated Mts A
	Hydrated Mts B		Limit of Hydrated Mts B
			Protective Fencing

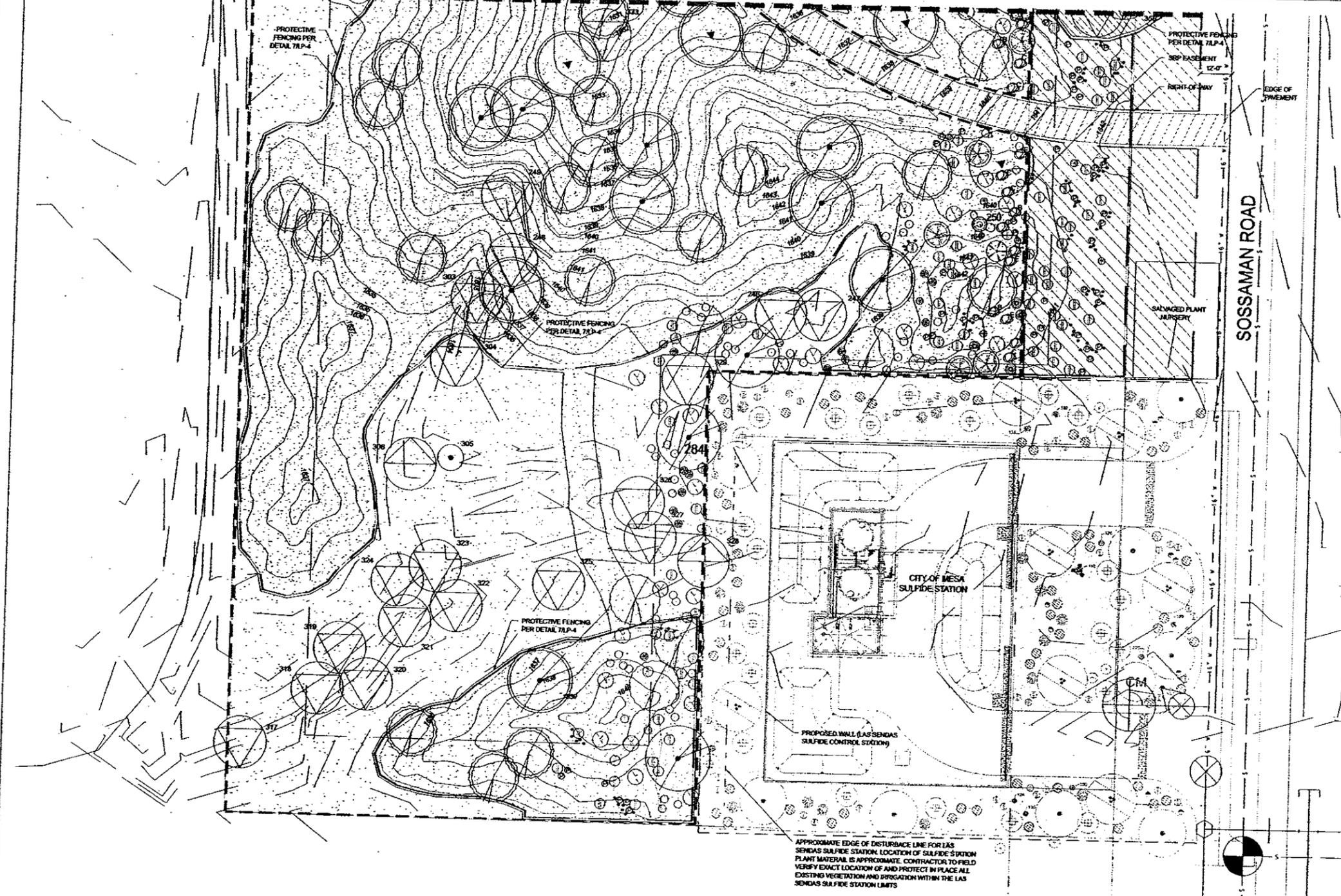
**LANDSCAPE BOULDERS**

SIZE	QTY.	SIZE	QTY.
2'x1.5'x1.5'	3	4.5'x3.5'x3'	1
3.5'x2.5'x2' (1,750 LBS)	34	5'x3.5'x3'	18
4'x3'x2.5'	36	7'x5'x4'	2

Note:  
1. Contractor shall hydrate all areas within the "limits of desert pavement/gravel" before and after placement of desert pavement.  
2. Contractor shall evenly distribute the clipped/trimmed "weedy" plant material from the site prior to placement of desert pavement.  
3. Contractor shall evenly distribute the salvaged and stockpiled desert pavement (2-inch min. depth) throughout the "limits of desert pavement".  
4. Contractor shall take extreme care to minimize disturbances to areas cordoned off by protective fencing (see LP-3) when planting and hydrating within these areas. No heavy equipment is permitted within these areas.

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN</b> <b>FCD PROJECT NO. 2004C052</b>			
DESIGNED	BY	DATE	
DRAWN	SEH	7/31/06	
CHECKED	CAG	7/31/06	
	SCP	7/31/06	
DRAWING NO. LP-1	PLANTING PLAN	SHEET OF 66	73

MATCH LINE - SEE DRAWING NO. LP-1



APPROXIMATE EDGE OF DISTURBANCE LINE FOR LAS SENDAS SULFIDE STATION. LOCATION OF SULFIDE STATION PLANT MATERIAL IS APPROXIMATE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF AND PROTECT IN PLACE ALL EXISTING VEGETATION AND IRRIGATION WITHIN THE LAS SENDAS SULFIDE STATION LIMITS

**Plant List:**

SYMBOL	BOTANICAL NAME COMMON NAME	SIZE	GAL.	QTY.	REMARKS
<b>CONTAINER TREES</b>					
○	<i>Chryse leucis</i> Ironwood	15 GAL.	.75'	2	multi-trunk
○	<i>Parthenocle microphyllum</i> Footfalls Palo Verde	15 GAL.	.50'	8	multi-trunk
○	<i>Prosopis velutina</i> Velvet Mesquite	15 GAL.	.75'	1	multi-trunk
<b>TRAIL POT TREES</b>					
○	<i>Chryse leucis</i> Ironwood	-	-	9	-
○	<i>Parthenocle microphyllum</i> Footfalls Palo Verde	-	-	18	-
○	<i>Prosopis velutina</i> Velvet Mesquite	-	-	3	-
<b>SHRUBS</b>					
○	<i>Arctostaphylos</i> Burrage	1 GAL.	-	50	-
○	<i>Escobea ferrea</i> Britbush	1 GAL.	-	73	-
○	<i>Ephedra nevadensis</i> Hoopon Tree	5 GAL.	-	13	-
○	<i>Justicia californica</i> Chaparral	5 GAL.	-	4	-
○	<i>Larrea tridentata</i> Cholla	5 GAL.	-	27	-
○	<i>Zinnia mexicana</i> Mexican Zinnia	5 GAL.	-	5	-
<b>CACTI / ACCENTS</b>					
○	<i>Ferocactus</i> sp. Burr Cholla	5 GAL.	-	5	-
○	<i>Opuntia venusta</i> Saguaro Cholla	5 GAL.	-	1	-
○	<i>Palafoxia corymbosa</i> Paper Flower	1 GAL.	-	46	-
○	<i>Zinnia mexicana</i> Desert Zinnia	1 GAL.	-	81	-

**SALVAGED PLANT MATERIAL**

○	<i>Chryse leucis</i> Ironwood	AS SALVAGED FROM SITE (SEE SALVAGE PLANS)	1	-	-
○	<i>Cercocarpus</i> Saguaro	AS SALVAGED FROM SITE (SEE SALVAGE PLANS)	1	(35 LF)	-

Salvaged Plant Material Notes:  
1. Salvage cut (Echinocactus sp., Hesperaloe sp., Opuntia sp.) shall be evenly planted throughout the site, including the SRP Right-of-Way.

**Existing Plant Material to be Protected in Place:**

SYMBOL	BOTANICAL NAME COMMON NAME	SYMBOL	BOTANICAL NAME COMMON NAME
○	<i>Cercocarpus</i> Saguaro	○	<i>Parthenocle floridanus</i> Blue Palo Verde
○	<i>Chryse leucis</i> Ironwood	○	<i>Parthenocle microphyllum</i> Footfalls Palo Verde

**Inert Materials**

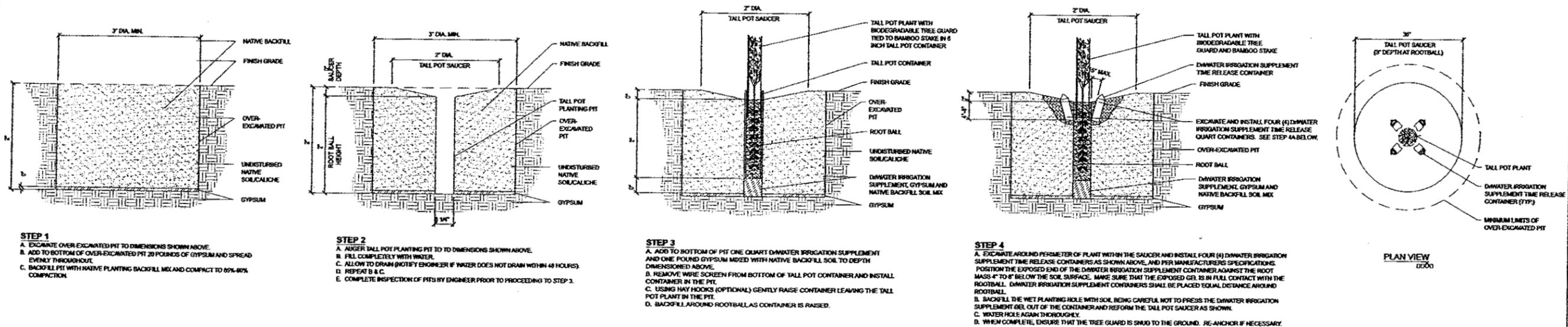
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
▨	Desert Pavement with Hydroseed Mix A	▨	Operation and Maintenance Road See Detail 5LP-4
▨	Hydroseed Mix A	▨	Limit of Desert Pavement
▨	Desert Pavement with Hydroseed Mix B	▨	Limit of Hydroseed Mix A
▨	Hydroseed Mix B	▨	Limit of Hydroseed Mix B
▨		▨	Protective Fencing

**LANDSCAPE BOULDERS**

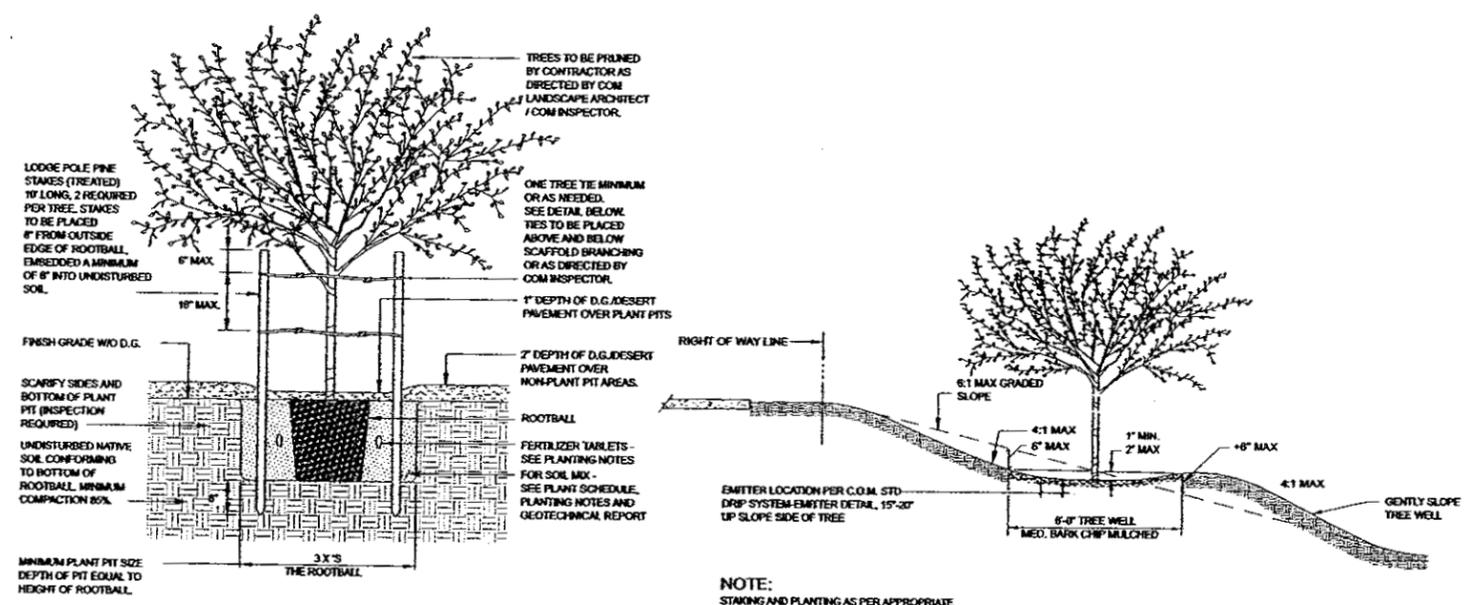
SIZE	QTY.	SIZE	QTY.
3.5'x2.5'x2' (1,750 LBS)	5	5'x3.5'x2' (5,250 LBS)	4
4'x2'x2.5' (2,625 LBS)	7		

- Contractor shall hydroseed all areas within the "limits of desert pavement"/grading" before and after placement of desert pavement.
- Contractor shall evenly distribute the chips/attached "desert" plant material from the site prior to placement of desert pavement.
- Contractor shall evenly distribute the salvaged and stockpiled desert pavement (2" thick sub. depth) throughout the "limits of desert pavement".
- Contractor shall take extreme care to minimize disturbance to areas cordoned off by protective fencing (see LP-3) when planting and hydroseeding within these areas. No heavy equipment is permitted within these areas.

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN</b> <b>FCD PROJECT NO. 2004C052</b>			
	DESIGNED	BY	DATE
	DRAWN	SEH	7/31/06
	CHECKED	SCP	7/31/06
DRAWING NO. LP-2	PLANTING PLAN		SHEET OF 67 73



**1 TALL POT PLANTING WITH OVER EXCAVATION**  
 SCALE: 3/4" = 1'-0"



**PLANTING NOTES:**

NATIVE PLANTING BACKFILL MIX:	MIX SHALL CONSIST OF 'NATIVE' SITE SOIL (NO CALICHE IN BACKFILL). REMOVE ALL INORGANIC MATERIAL GREATER THAN 1" IN SIZE. SOIL MIX SHALL BE WATER SETTLED WITHOUT POOLING.
AMENDED PLANTING BACKFILL MIX:	MIX SHALL CONSIST OF: 1/2 PART 'NATIVE' SITE SOIL (NO CALICHE IN BACKFILL) & 1/2 PART MULCH (POMORUS) "NATURAL FERTILE, FRABLE SOIL THOROUGHLY MIXED PRIOR TO BACKFILLING PIT. REMOVE ALL INORGANIC MATERIAL GREATER THAN 1" IN SIZE. SOIL BACKFILLING SHALL BE ACCOMPLISHED IN 8" LIFTS. EACH LIFT SHALL BE WATER SETTLED WITHOUT POOLING.
FERTILIZER TABLETS:	FERTILIZER TABLETS SHALL BE AGRIFORM OR EQUAL (21 GRAM 20-20-5) SLOW RELEASE. TABLETS SHALL BE PLACED AT 1/2 THE DEPTH OF THE ROOTBALL AT THE FOLLOWING RATES: 1 TABLET PER 1 GALLON CONTAINER 2 TABLETS PER 5 GALLON CONTAINER 3 TABLETS PER 15 GALLON CONTAINER 4 TABLETS PER 24" BOX AND AT A RATE OF 1 TABLET PER EACH ADDITIONAL 8" BOX SIZE. WHEN MULTIPLE QUANTITIES OF TABLETS ARE REQUIRED, THEY SHALL BE EQUALLY SPACED AT THE SPECIFIED DEPTH.

**2 TREE PLANTING DETAIL IN D.G. AREAS**  
 SCALE: NTS



**3 RETENTION BASIN SLOPE PLANTING**  
 SCALE: MTS



**4 PLANTING NOTES**  
 SCALE: NTS



602-263-1100

NO	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
 ENGINEERING DIVISION

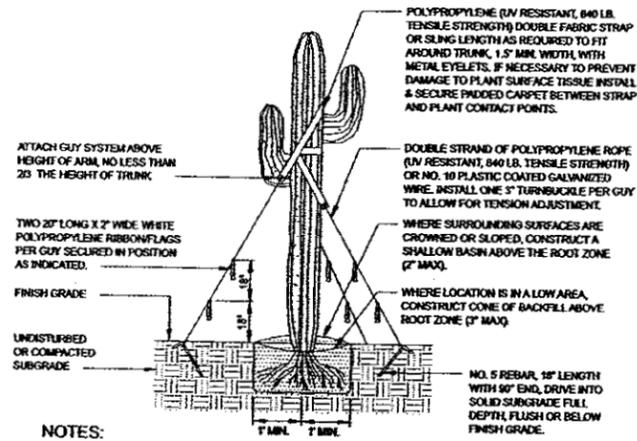
MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN  
 FCD PROJECT NO. 2004C052

DESIGNED	CAG	7/31/06
DRAWN	CAG	7/31/06
CHECKED	SCP	7/31/06

BY DATE

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DRAWING NO LP-3 PLANTING DETAILS SHEET OF 68 73

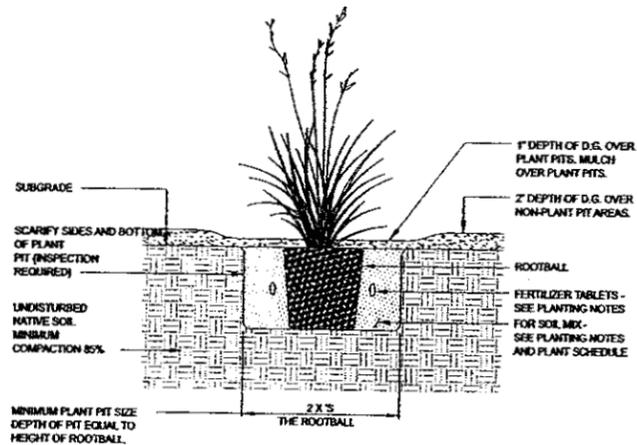


- NOTES:**
- SAGUARO TO HAVE MINIMUM 2\"/>

- INSTALLATION PROCEDURE:**
- CLEANLY CUT AND REMOVE ANY DAMAGED ROOTS. SPRAY ALL ROOT SURFACES WITH AN APPLICATION OF STREPTOMYCIN AND IMMEDIATELY APPLY TO WET SURFACES AN APPLICATION OF DUSTING SULFUR.
  - EXCAVATE OR AUGER PLANT PIT WITH SOLID VERTICAL SIDES. PROVIDE A MINIMUM 6\"/>

### 1 SAGUARO PLANTING DETAIL

SCALE: NTS



- NOTES:**
- PLANTS DELIVERED WITH CRACKED OR BROKEN CONTAINERS, NOT ROOTED IN CAN OR ROOT BOUND, WILL BE REJECTED.
  - ALL PLANT ROOTBALLS SHALL BE FLUSH WITH SURGRADE.

### 2 SHRUB PLANTING DETAIL

SCALE: NTS

Scientific Name	Common Name	Specified Plant Area
<i>Acacia constricta</i>	Whitethorn	1.5
<i>Acacia greggii</i>	Catalaw Acacia	2
<i>Ambrosia deltoidea</i>	Triangle-leaf Bursage	3
<i>Antidesia purpurea</i>	Purple Three-awn	2
<i>Atriplex canescens</i>	Four-wing Saltbush	2
<i>Atriplex polycarpa</i>	Quailbush	1
<i>Bahya multiradiata</i>	Desert Marigold	1
<i>Cercia pedalis</i>	Desert Hackberry	1.5
<i>Chopsis linearis</i>	Desert Willow	1
<i>Encelia farinosa</i>	Brittlebush	2
<i>Ephedra sp.</i>	Monnon Tea	1
<i>Eschscholzia mexicana</i>	Mexican Gold Poppy	2
<i>Larrea tridentata</i>	Chocotee Bush	1
<i>Lesquerella gordonii</i>	Gordon Bladder Pod	1
<i>Lycium andersonii</i>	Wolfberry	1
<i>Obovata lasota</i>	Bonewood	1
<i>Orthocentrus purpureus</i>	Owl Clover	1
<i>Panicum primum</i>	Footfalls Palo Verde	6
<i>Phacelia crenulata</i>	Desert Phacelia	1
<i>Prosopis juliflora</i>	Velvet Mesquite	1
<i>Psilostrophe cooperi</i>	Paper Daisy	1
<i>Sphaeralcea ambigua</i>	Globe Mallow	1
<i>Zinnia acerosa</i>	Desert Zinnia	1
<i>Zyzyphus obtusiloba</i>	Greythorn	1

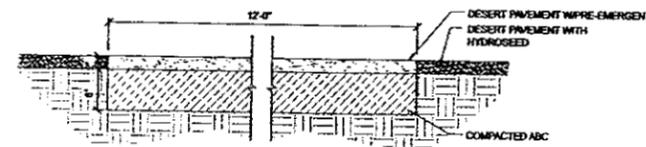
Scientific Name	Common Name	Specified Plant Area
<i>Ambrosia deltoidea</i>	Triangle-leaf Bursage	3
<i>Antidesia purpurea</i>	Purple Three-awn	2
<i>Bahya multiradiata</i>	Desert Marigold	1
<i>Encelia farinosa</i>	Brittlebush	2
<i>Eschscholzia mexicana</i>	Mexican Gold Poppy	2
<i>Lesquerella gordonii</i>	Gordon Bladder Pod	1
<i>Orthocentrus purpureus</i>	Owl Clover	1
<i>Phacelia crenulata</i>	Desert Phacelia	1
<i>Psilostrophe cooperi</i>	Paper Daisy	1
<i>Sphaeralcea ambigua</i>	Globe Mallow	1
<i>Zinnia acerosa</i>	Desert Zinnia	1

### 3 HYDROSEED MIX A - BASIN

SCALE: NTS

### 4 HYDROSEED MIX B - ROAD RIGHT-OF-WAY

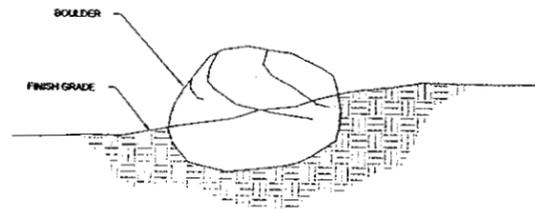
SCALE: NTS



**NOTE:**  
PRE-EMERGENT HERBICIDE SHALL BE APPLIED PER THE MANUFACTURER'S RECOMMENDATIONS OVER OPERATION AND MAINTENANCE ROAD BEFORE AND AFTER PLACEMENT OF DESERT PAVEMENT. PRE-EMERGENT HERBICIDE SHALL BE SURFACIAL, DACTHAL OR APPROVED EQUAL.

### 5 OPERATION AND MAINTENANCE ROAD

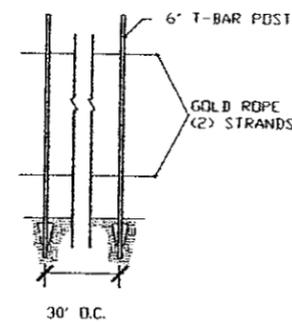
SCALE: NTS



- NOTES:**
- ALL BOULDERS TO BE NATIVE LOCAL SURFACE SELECT GRANITE UNLESS OTHERWISE NOTED.
  - BURY 50-60% OR UP TO SHADOW LINE OF BOULDER TO CREATE A NATURAL IMPRESSION.
  - USE STRAPS TO PLACE BOULDERS.
  - BOULDERS WITH EXCESS SCARRING WILL BE REJECTED.
  - LOCATE BOULDER BEST SIDE UP. BOULDER TO BE PLACED WITH FRACTURED SIDE DOWN. DO NOT STAND BOULDERS VERTICALLY. PLACE WITH LONG SIDE PARALLEL TO THE FINISHED GRADE.
  - SEE LEGEND FOR BOULDER SIZE.
  - BOULDER TO BE FREE AND CLEAR OF CONCRETE, PAINT, ETC.

### 6 BOULDER DETAIL

SCALE: NTS

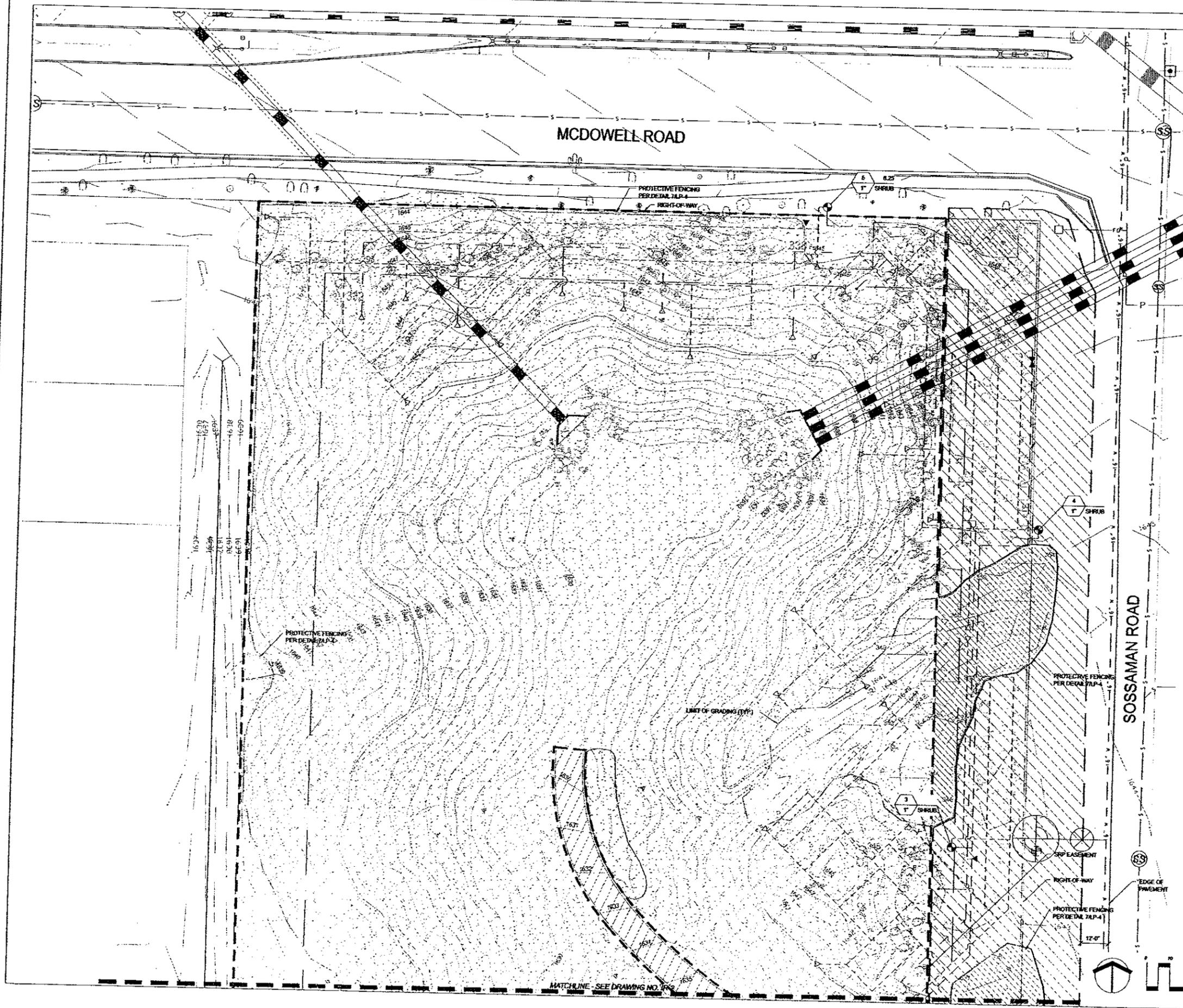


### 7 PROTECTIVE FENCE DETAIL

SCALE: 1/2\"/>

602-263-1100  
We Make It Right  
ONE COLLECT

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NO.	REVISION	BY	DATE
<b>MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN</b> FCD PROJECT NO. 2004C052			
	DESIGNED	CAC	7/31/06
	DRAWN	CAC	7/31/06
	CHECKED	SCP	7/31/06
DRAWING NO. LP-4	PLANTING DETAILS		SHEET OF 69 73



**Irrigation Legend:**

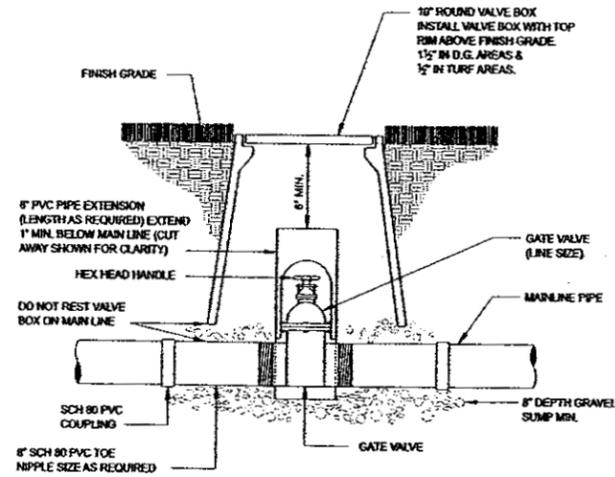
SYMBOL	ITEM	DESCRIPTION MODEL NUMBER	MANUFACTURER
NOT SHOWN	WATER METER	PER CITY OF MESA SULFIDE STATION	BY CITY
NOT SHOWN	BACKFLOW PREVENTER	PER CITY OF MESA SULFIDE STATION	BY CITY
◻	CONTROLLER	IRRITROL MC PLUS, 12 STATIONS PER CITY OF MESA SULFIDE STATION	BY CITY
⌵	GATE VALVE	WITH OPERATING NUT AND KEY, LINE SIZE	HARCO, WATERIOUS OR EQUAL
▽	QUICK COUPLING VALVE	4ALRC WITH LOCKING RUBBER COVER	RAMBRID
⊙	DRIP VALVE ASSEMBLY	IRRITROL 700-1 SERIES ULTRAFLOW 1" CONTROL VALVE WITH IRRITROL E2002 DC LATCHING SOLENOID	IRRITROL
▽	MANUAL FLUSH END CAP ASSEMBLY	PER DETAIL 1 DRAWING NO. IR-4	
---	MAINLINE	1" PVC SCH 40, 18" MIN. COVER	APPROVED
---	DRIP LINE LATERAL (TREES)	3/4" CLASS 200 PVC	APPROVED
---	DRIP LINE LATERAL (SHRUBS)	3/4" CLASS 200 PVC	APPROVED
---	PIPE SLEEVING	SLEEVES UNDER PAVED AREAS FOR ALL IRRIGATION LINES. TYPE AND SIZE PER DETAIL 4 DRAWING NO. IR-4	APPROVED
⊙		FIELD SATELITE UNIT & STATION NUMBER	
⊙		GALLONS PER MINUTE	
⊙		PLANT TYPE	
⊙		ELECTRIC CONTROL VALVE SIZE	
NOT SHOWN	DRIP EMITTER	MODEL NO. ML206 (LOW WATER USE) MODEL NO. ML216 (ACCENTS) MODEL NO. ML210 (GROUNDCOVERS) MODEL NO. ML210 (SHRUBS) MODEL NO. ML220 (TREES)	BOWSMITH BOWSMITH BOWSMITH BOWSMITH
NOT SHOWN	CONTROL WIRE	UF DIRECT BURIAL SOLID COPPER, 12 GA. COMMON, 14 GA. PILOT	APPROVED

- NOTES:**
1. POLY TUBE SHALL NOT EXCEED 10' IN LENGTH OFF PVC LATERALS.
  2. LARREA TRIDENTATA IS DESIGNATED AS LOW WATER USE PLANT MATERIAL.
  3. SEE DRAWINGS NO. LP-1 AND LP-2 FOR GENERAL IRRIGATION NOTES.
  4. SEE DRAWINGS NO. IR-3 AND IR-4 FOR IRRIGATION DETAILS.
  5. CONTRACTOR SHALL TAKE EXTREME CARE TO MINIMIZE DISTURBANCE TO AREAS CONFINED OFF BY PROTECTIVE FENCING (SEE LP-3) WHEN INSTALLING IRRIGATION EQUIPMENT AND PIPING WITHIN THESE AREAS. NO HEAVY EQUIPMENT IS PERMITTED WITHIN THESE AREAS.

602-263-1100  
Blue Water Center  
CHAS COLLECT

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NO.	REVISION	BY	DATE
 <b>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</b>			
<b>MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN FCD PROJECT NO. 2004C052</b>			
	DESIGNED	CAG	7/31/06
	DRAWN	CAG	7/31/06
	CHECKED	SCP	7/31/06
		BY	DATE
<b>DRAWING NO. IR-1</b>		<b>IRRIGATION PLAN</b>	
<b>SHEET OF 70</b>		<b>73</b>	



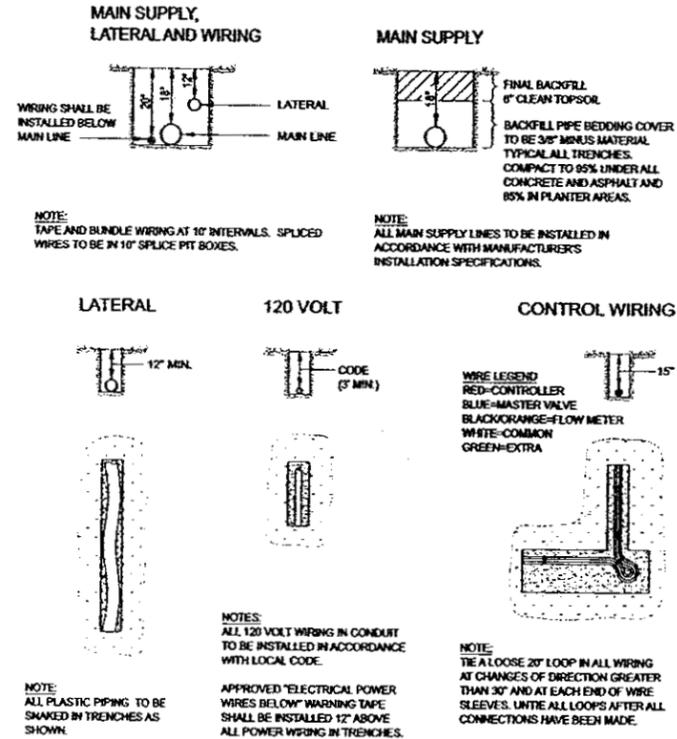


**NOTES:**

1. COMPACT SOIL AROUND CONTROL VALVE PIT ASSEMBLY TO SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
2. IF GATE VALVE IS OVER 5.0 FEET DEEP, USE MAG 301-2 FOR EXTENSION.
3. PROVIDE CITY OF MESA WITH GATE VALVE KEY - LENGTH AS REQUIRED.
4. FOR ALL PIPE 2-1/2" OR SMALLER.

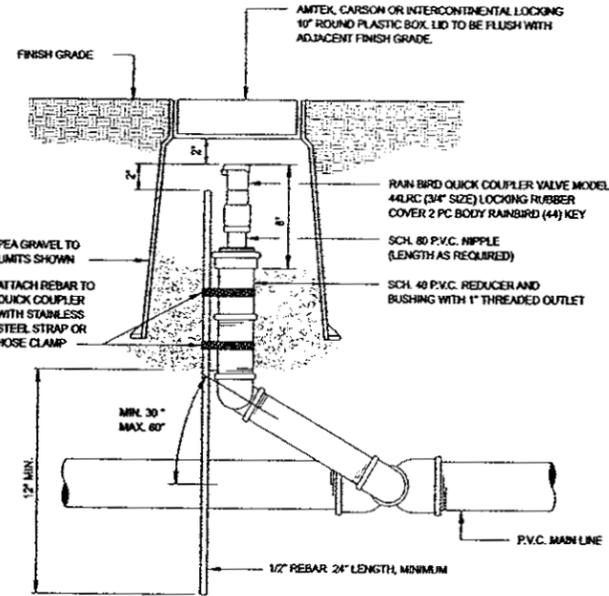
**1 BRASS GATE VALVE ASSEMBLY  
INSTALLED W/ SOLVENT WELD PVC PIPE**

SCALE: NTS



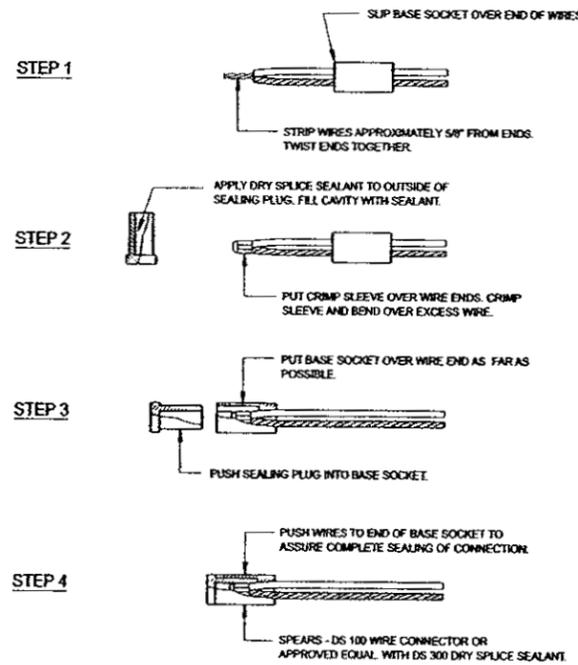
**4 TYPICAL TRENCHING DETAIL**

SCALE: NTS



**2 QUICK COUPLER DETAIL**

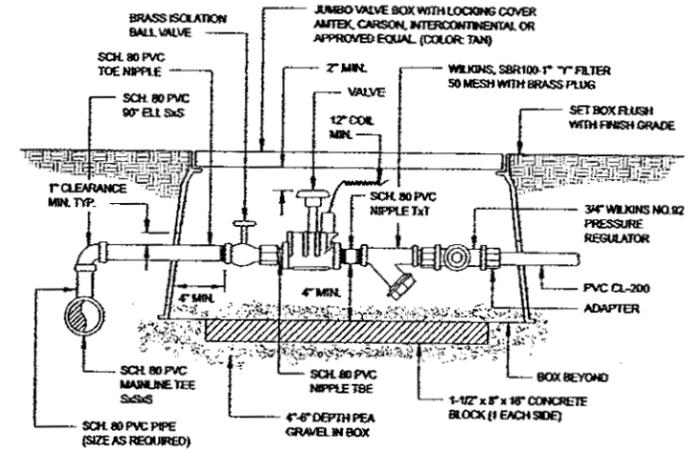
SCALE: NTS



NOTE: FOR WIRE SIZES NO.14, NO.12, AND NO.10

**5 TYPICAL WIRE CONNECTION DETAIL**

SCALE: NTS



**NOTES:**

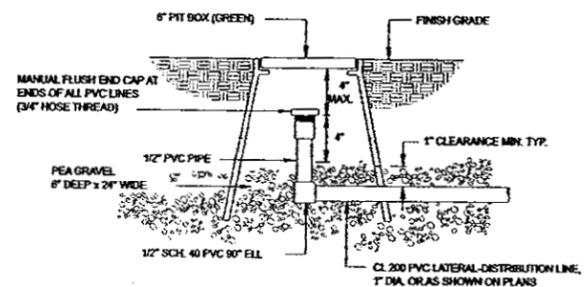
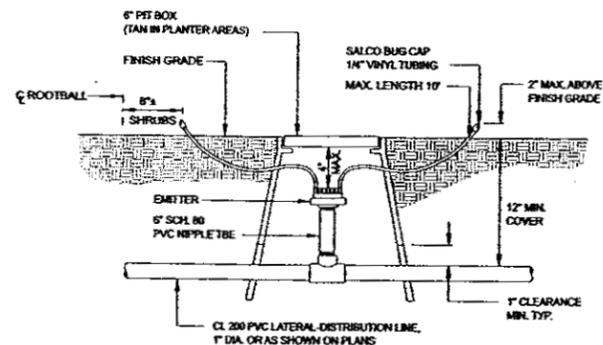
1. PROVIDE EXPANSION COILS AT EACH WIRE CONNECTION IN VALVE BOX (WRAP AROUND 1/2" PIPE 15 TIMES)
2. DO NOT REST VALVE BOX ON MAIN LINE OR LATERAL LINE.

**3 DRIP SYSTEM - REMOTE CONTROL  
VALVE, REGULATOR & FILTER ASSEMBLY**

SCALE: NTS



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NO.	REVISION	BY	DATE
	<b>MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN FCD PROJECT NO. 2004C052</b>		
	DESIGNED	CAG	7/31/06
	DRAWN	CAG	7/31/06
	CHECKED	SCP	4/7/06
			DATE
			BY
			DATE
DRAWING NO	IRRIGATION DETAILS		SHEET OF
IR-3			72 73



**1 DRIP SYSTEM - EMITTER DETAIL AND MANUAL FLUSH END CAP ASSEMBLY**

SCALE: NTS

**EMITTER SCHEDULE: OPERATION AT 20-25 PSI**

(1) BOWSMITH (MULTI) ML210 OR EQUAL (PER 5 TO 6 SHRUBS)

(1) BOWSMITH (SINGLE) SL 1 GPH OR EQUAL (PER EACH SHRUB)

(1) BOWSMITH (MULTI) ML220 OR EQUAL (PER EACH TREE)

**FOR 15 GALLON TREES**

3 OUTLETS EQUALLY SPACED AROUND TREE / AT THE DRIP LINE OF THE TREE

**FOR 24" BOX TREES**

4 OUTLETS EQUALLY SPACED AROUND TREE / AT THE DRIP LINE OF THE TREE

FOR EACH 12" INCREASE IN BOX - PROVIDE 1" ADDITIONAL OUTLET (MAINTAIN EQUAL SPACING OF OUTLETS)

TYPE	TOTAL FLOW	SIZE	QUANTITY	FLOW PER OUTLET	OUTLETS OPEN
TREES	6 GPH	15 GALLON	1 EM.	2 GPH	3
	8 GPH	24" BOX	1 EM.	2 GPH	4
	10 GPH	36" BOX	1 EM.	2 GPH	5
	12 GPH	48" BOX	1 EM.	2 GPH	6
	16-24 GPH	56" BOX AND LARGER	2 EM.	2 GPH	8-12
SHRUBS	1 GPH	1 GALLON	1 EM.	1 GPH	1
	1 GPH	5 GALLON	1 EM.	1 GPH	1
	3 GPH	15 GALLON	1 EM.	1 GPH	3
LOW WATER USE SHRUBS	.5 GPH	1 GALLON	1 EM.	.5 GPH	1
	.8 GPH	5 GALLON	1 EM.	.8 GPH	1

**2 EMITTER SCHEDULE**

SCALE: NTS

**FRICTION LOSS CALC**

PRESSURE AT SITE SOURCE VERIFIED WITH CITY PSI 60

FRICTION LOSS THROUGH (TO FARTHEST HEAD)\*

WATER METER PSI 0.8

REDUCED PRESSURE VACUUM BREAKER PSI 12

MAIN LINE PIPE PSI 2.93

VALVE PSI 1.8

LATERAL LINE PIPE PSI 2.93

\* TOTAL FRICTION LOSS PSI 22.42

\* REQUIRED PRESSURE AT HEAD PSI 20

(TOTAL FRICTION LOSS) + (REQUIRED PSI AT HEAD)

\* PRESSURE REQUIRED AT SOURCE PSI 42.42

CALCULATIONS DONE BY \_\_\_\_\_ SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

**NOTES:**

- SEE ALSO LANDSCAPE AND IRRIGATION STANDARDS SECTION 2 AUTOMATIC IRRIGATION SYSTEMS 2.8 - PIPING, FOR CALCULATIONS FOR LARGEST GALLONS PER MINUTE (G.P.M.) FLOW CIRCUIT.
- REMOTE CONTROL VALVE TURF AND/OR DRIP ASSEMBLY SHALL BE DESIGNED TO A MINIMUM 3 G.P.M.
- OPERATING PRESSURE FOR DRIP IRRIGATION SYSTEM SHALL BE 20-25 PSI TYPICALLY.

**3 FRICTION LOSS CALCULATIONS**

SCALE: NTS

INSTALL IRRIGATION PIPING PER THE FOLLOWING SCHEDULE:

PIPE SIZE	SCH 40 FLOW (GPM)
1/2"	0.4
3/4"	4.8
1"	8.13
1 1/4"	13.22
1 1/2"	23.30

NOTE:  
1. VELOCITY OF FLOW SHALL NOT EXCEED FIVE FEET PER SECOND.

**4 PIPE SIZE SCHEDULE**

SCALE: NTS

INSTALL IRRIGATION SLEEVES UNDER ALL PAVED SURFACES PER THE FOLLOWING SCHEDULE:

PIPE SIZE OR WIRE QUANTITY	REQUIRED SLEEVES
3/4" LATERAL	(1) 2" SCH 40 PVC
1" LATERAL	(1) 2" SCH 40 PVC
1 1/4" LATERAL	(1) 2" SCH 40 PVC
1 1/2" LATERAL	(1) 4" SCH 40 PVC
2" LATERAL	(1) 4" SCH 40 PVC
2 1/2" LATERAL	(1) 6" SDR 35 PVC
3" PRESSURE SUPPLY LINE	(1) 2" SCH 40 PVC
4" PRESSURE SUPPLY LINE	(1) 4" SDR 35 PVC
6" PRESSURE SUPPLY LINE	(1) 6" SDR 35 PVC
8" PRESSURE SUPPLY LINE	(1) 8" SDR 35 PVC
1-20 CONTROL WIRES	(1) 2" SCH 40 PVC
21-40 CONTROL WIRES	(2) 2" SCH 40 PVC

- NOTE:
- IRRIGATION CONTRACTOR TO COORDINATE THE PLACEMENT OF SLEEVES WITH OTHER TRADES TO ENSURE SLEEVES ARE PLACED PRIOR TO THE INSTALLATION OF HARDSCAPE ELEMENTS.
  - IRRIGATION CONTRACTOR TO COORDINATE WITH OTHER TRADES TO ENSURE BACKFILL MEETS ENGINEERING REQUIREMENTS. SLEEVES UNDER ROADWAYS SHALL HAVE A MINIMUM DEPTH OF TWENTYFOUR INCHES (24") TO TOP OF SLEEVE.
  - EXTEND ENDS OF SLEEVES A MINIMUM OF 30 INCHES BEYOND THE EDGE OF HARDSCAPE.
  - PROVIDE DETECTOR TAPE MARKER FROM BOTH ENDS OF SLEEVE TO FINISH GRADE FOR FUTURE IDENTIFICATION OF SLEEVE LOCATIONS.

**5 SLEEVE SIZE SCHEDULE**

SCALE: NTS



NO.	REVISION	BY	DATE
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2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION

MCDOWELL ROAD BASIN AND STORM DRAIN DESIGN FCD PROJECT NO. 2004C052

	BY	DATE
DESIGNED	CAG	7/31/06
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DRAWING NO.	IRRIGATION DETAILS	SHEET OF
IR-4		73 73