

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		February 11, 2020
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	COPIES TO:
	TSC North Las Vegas - Update	JPL Engineering
Cross Streets:	NEQ of Sky Pointe Drive & Cimarron Road	Red Hook Cimarron LLC
File Number:	F:\Depot\DSMemos\DS5136C.doc	Bart Anderson, P.E., DevCo
Parcel Number:	125-12-710-010 & 125-12-710-011	
Zoning Action:	SDR-75321	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	5/7/2019	5/28/2019	Not Approved	\$400.00	3124096: \$400
2 nd Submittal	7/11/2019	8/2/2019	Approved	\$400.00	3486124: \$400
3 rd Submittal	1/27/2020	2/11/2020	See Comments Below	\$100.00	3717233: \$100
TOTAL FEES (LDDRS):				\$900.00	----

REMARKS:

3rd Submittal: Update for a minor revision to reroute a landscape swale

The Drainage Study for the subject project has been reviewed and:

	is approved subject to conformance to all City standards and the following conditions:
X	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

Address whether the following condition from the previous review has been satisfied:

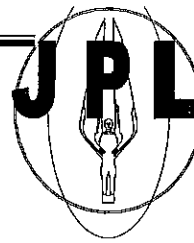
1. *Section C* and *Section D* in **Sheet C5**: Clearly label the proposed flood protection stem wall to be an 8"-thick CMU to be solid grouted to a minimum of 3-course from the adjacent finished grade or equivalent.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

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T/R/S: T19S/R60E/21
AREA G-21



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**UPDATE
TECHNICAL DRAINAGE STUDY**

FOR

**TSC NORTH
(APN: 125-21-710-010 & 125-21-710-011)
DS5136A
STORM DRAIN RCP**

@

CIMARRON ROAD AND SKY POINTE DRIVE

JPL Job No. 19002

Prepared for:

**Jade Consulting LLC
(Owners: Red Hook Cimarron LLC)
208 Greeno Road North
Fairhope alabama 36533**

Prepared by:

**JPL Engineering, Inc.
6725 South Eastern Ave., Ste. 5
Las Vegas, Nevada 89119
Phone: 702-898-6269
Fax: 877-557-8292**

January, 2020

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Update to TDS for TSC North Las Vegas Date: 1-23-2020
 Location of Development: a) Descriptive (Cross Streets) North/South: Cimarron Road
 East/West: Sky Pointe Drive
 b) Section: 21 Township: 19 South Range: 60 East
 c) APN : 125-21-710-010 & 011

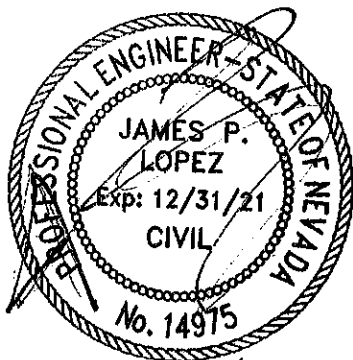
Name of Owner: Red Hook Cimarron LLC C/O Trey Jinright-Jade Consulting
 Telephone No.: 251-928-3443 Fax No.: _____ E-Mail Address: tjinright@jadengineers.com
 Address: 208 Greeno Road North Fairhope AL, 86533

Contact Person-Name: James Lopez Telephone No.: (702) 898-6269
 * E-Mail Address: james@jplengineeringinc.com Fax No.: _____
 Firm: JPL Engineering, Inc.
 Address: 6725 S. Eastern Ave, Ste 5, Las Vegas, NV, 89119

Type of Land Development/Land Disturbance Process:

☐ Rezoning	☐ Subdivision Map	☐ Clearing and Grading Only
☐ Parcel Map	☐ Planned Unit Development	☐ Other (Please specify below)
☐ Large Parcel Map	☒ Building Permit	

- Total Owned Land Area: At Site: 3.0 AC +/- Being Developed/Disturbed: 3.0 AC +/-
- Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No
- Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☐ Yes** ☒ No
- Proposed type of development (Residential, Commercial, Etc.): Commercial
- Approximate upstream land area which drains to the subject site: See Plans
- Has the site drainage been evaluated in the past? ☒ YES ☒ NO If yes, please identify documentation: DS 5136A
- If known, please briefly identify the proposed discharge point(s) of runoff from the site: East towards Private Drive
- Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal

1/23/2020

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*New Required Field

**Review and concurrence of the Clark County Regional Flood Control District is required.

Revision	Date

Local Entity File No.

REFERENCE:

STANDARD FORM 1

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

Project Name: TSC North Las Vegas	Map ID:
Firm Name: JPL Engineering, Inc	Engineer: James Lopez
Address: 6725 S. Eastern Ave	
City: Las Vegas	State: NV Zip: 89119
Phone Number: (702) 898-6269	Fax Number:
Property Owner: Red Hook Cimarron LLC C/O Trey Jinright-Jade Consulting	
Address: 208 Greeno Road North Fairhope AL, 86533	
City: Fairhope	State: AL Zip: 86533
Reviewed By:	Date Received: Date Accepted for Review:

The following checklist is intended as a guide for the engineer preparing a Technical Drainage Study to submit to the local entity and Clark County Regional Flood Control District (if necessary). The listed items are the minimum information required prior to the entity performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the Clark County Regional Flood Control District (CCRFCDD) Hydrologic Criteria and Drainage Design Manual (MANUAL).

This document is intended as an aid in preparing Technical Drainage Studies. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT

Yes	No	
☒	☐	Design Manual Standard Form 1 with the engineer's seal and signature.
☒	☐	Design Manual Standard Form 4 .
☒	☐	2 copies of the 24" x 36" Drainage Plan.
☐	☒	A notarized letter from the adjacent property owner(s) allowing off-site grading or discharge.

II. MAPS AND EXHIBITS

Yes	No	
☒	☐	A copy of a current Flood Insurance Rate Map (FIRM) with the site delineated.
☒	☐	A copy of the current CCRFCDD Master Plan Update Figure, (F-x), for Flood Control Facilities and Environmental areas with the site delineated.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

II. MAPS AND EXHIBITS (Continued)

Yes No

- ☒ _____ Off-site drainage basin maps for existing, interim and future conditions showing the existing topography, basin boundaries, concentration points, and flows in cfs.
- ☒ _____ On-site drainage basin maps for existing and proposed conditions showing the existing topography, basin boundaries, concentration points, and on-site and off-site flows in cfs.
- ☒ _____ Vicinity Map with local and major cross streets identified and a north arrow.

III. DRAINAGE PLAN

Yes No

- ☒ _____ Sheet size: 24" x 36" sealed by a registered engineer in the State of Nevada.
- ☒ _____ Minimum scale: 1" = 60'.
- ☒ _____ Project name.
- ☒ _____ Vicinity Map with local and major cross streets.
- ☒ _____ Revision box.
- ☒ _____ North arrow and bar scale.
- ☒ _____ Engineer's/consultant's address and phone number.
- ☒ _____ Elevation datum and benchmark.
- ☒ _____ Legend for symbols and abbreviations.
- ☒ _____ Cut/fill scarps, where applicable.
- ☒ _____ Street names, grades, widths.
- ☒ _____ Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street.
- ☒ _____ Existing contours encompassing the site and 100 feet beyond with spot elevations for important locations, where appropriate.
- ☒ _____ Minimum finish floor elevations with top-of-curb elevations at upstream end of lot.
- ☐ _____ N/A Proposed typical street sections.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
☐	☒ N/A	Streets with off-set crowns.
☒	☐	Proposed contours or spot elevations in sufficient detail to exhibit intended drainage patterns and slopes.
☒	☐	Property lines.
☒	☐	Right-of-way lines and widths, existing and proposed.
☒	☐	Existing improvements and their elevations.
☒	☐	Delineation of proposed on-site drainage basins indicating area and 10-year and 100-year storm peak flows at basin concentration points.
☒	☐	Concentration points and drainage flow direction with Q_{100} and V_{100} and D_{100} in streets.
☒	☐	Cumulative flows, velocity, and direction of flow at upstream and downstream ends of site for the 10-year and 100-year flows.
☒	☐	Location and cross-section of street capacity calculations.
☐	☒ N/A	Cross-sectional detail for channels, including cutoff wall locations.
☒	☐	Existing and proposed drainage facilities, appurtenances, and connections (i.e., sidewalk, ditches, swales, storm drain systems, unimproved and improved channels, and culverts, etc.) stating size, material, shape, and slope with plan and profile and HGL calculations.
☒	☐	Existing and proposed drainage easements and widths shown with sufficient detail. A cross sectional detail must be provided that shows appropriate lining and reinforcement.
☐	☒ N/A	Location and detail of existing, proposed, and future block wall openings. Minimum size is 16" x 48". Wrought iron gate is required for flows > 10 cfs.
☐	☒ N/A	Location and detail of flood walls illustrating depth of flow, proposed grouting height, etc.
☐	☒ N/A	Perimeter retaining wall locations. All existing and proposed walls (retaining screen and flood) must be shown with adjacent ground elevations. Flood walls with 8-inch concrete masonry unit.
☒	☐	Building and/or lot numbers.
☒	☐	Alignment of all existing, proposed, or future Regional Facilities adjacent to the site.
☒	☐	Limits of existing floodplain based on current FIRM or best available information; limits of proposed floodplains based on best available information.

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

III. DRAINAGE PLAN (Continued)

Yes	No	
☐	<u>N/A</u>	For areas in Zone A, AE, AH, and AO, base flood elevations (BFEs) must be shown for each lot; BFEs may be listed on each lot, or in a table. Finish floor elevations must be a minimum of 18 inches above BFE.
☐	<u>N/A</u>	Appropriately elevated "humps" 6 inches above the 100 year water surface elevation at site accesses where the intent is to protect the site from the Q_{100} flows.
☐	<u>N/A</u>	Street slopes for perimeter and interior streets. The minimum slope is 0.4 percent.
☐	<u>N/A</u>	Location and detail of best management practice (BMP) for parking lots and low impact development (LID) (if required).

IV. HYDROLOGIC ANALYSIS

Yes	No	
<u>x</u>	☐	Appropriate soil information and Soils Map for existing and future conditions with subbasins and property delineated.
<u>x</u>	☐	Input and output information for existing conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
<u>x</u>	☐	Input and output information for future conditions from computer models (HEC-1 or TR-55). The flow routing diagram must be provided with HEC-1 models.
<u>x</u>	☐	Use of correct precipitation values in and around the McCarran Airport rainfall area.
<u>x</u>	☐	A discussion in the text of the hydrologic analysis justifying subbasin boundaries and cutoffs, supporting assumptions, and calculations.
<u>x</u>	☐	A summary table of stormwater flows showing basin area, Q_{10} and Q_{100} for both individual basins and combined basin flows, where applicable.
<u>x</u>	☐	Copies of supporting technical information referenced from a previously approved study and a statement accepting these results.
<u>x</u>	☐	On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners in accordance with current Nevada Drainage Law.
☐	<u>N/A</u>	Calculation for impervious area for parking lots and LIDs (if required).

REFERENCE:

STANDARD FORM 2

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE SUBMITTAL CHECKLIST

V. HYDRAULIC ANALYSIS

Yes	No	
☐	<u>N/A</u>	Flow split calculations and supporting documentation or reference for the method of flow split calculations used.
<u>x</u>	☐	Normal depth street flow calculations and cross section diagrams for all interior and perimeter streets. Provide "d x v" products for the Q_{100} and Q_{10} flows representing the worst case for interior and all perimeter streets. $Q_{100} d \times v \leq 8$. $Q_{10} d \times v \leq 6$ and 12 foot dry lane for rights-of-way ≥ 80 feet. Calculations must be labeled by street name as indicated on the Grading Plan.
<u>x</u>	☐	A summary table of interior and exterior street capacity calculations showing the street name, Q_{100} flow, slope, depth of flow, velocity and depth times velocity product and streets needing to meet 12 foot dry lane criteria.
<u>x</u>	☐	Appropriate hydraulic calculations for block wall openings assuming a 50 percent vertical clogging factor. (Assume the lower half of the opening is plugged.)
☐	<u>N/A</u>	Appropriate hydraulic calculations at drainage easement entrance and discharge locations to set finish floor elevations. Hydraulic calculations must include submerged weir, superelevation and tee intersection losses, where appropriate.
<u>x</u>	☐	Provide necessary freeboard requirements to set the finished floor elevations of all proposed buildings, 2 x depth of flow or depth of flow plus 18 inches of freeboard, whichever is less. The minimum requirement is 6 inches above adjacent upstream top of curb. Buildings adjacent to drainage easements must always be provided with 18 inches of freeboard above the Q_{100} weir height or flow depth, whichever is greater.
☐	<u>N/A</u>	A complete water surface profile analysis (HEC-2, HEC-RAS, etc.) for channel flows and FEMA Zone A flood zones. • Field survey data. • Input and output information. • Plotted cross-sections based on survey with proper encroachments. • A map showing the location of the cross-sections. • Analysis of both sub and super-critical flow segments. • A summary table and a discussion of the results in the text of the report.
☐	<u>N/A</u>	Provide a 50 percent clogging factor in the capacity calculation for drop inlets.
☐	<u>N/A</u>	Hydraulic calculations for culverts and storm drains. D-Load calculations must be provided for storm drain pipes in public rights-of-way, including headwater pool inundation.
<u>x</u>	☐	The mitigation of nuisance water, both during construction and in the fully developed condition, must be addressed.
☐	<u>N/A</u>	Provide BMP type, size and supporting calculations for parking lots and LIDs (if required).

REFERENCE:

STANDARD FORM 2



CITY OF LAS VEGAS

MINIMUM DRAINAGE STUDY CRITERIA STANDARD FORM 2 CHECKLIST SUPPLEMENT

(Revised 5/18/11)

The following checklist is intended as a supplemental guide for the engineer preparing a Technical Drainage Study submittal to the City of Las Vegas. This supplement focuses on requirements specific to the City of Las Vegas. The requirements presented are in addition to the Clark County Regional Flood Control District (CCRFCD) Manual Standard Form 2. The listed items are the minimum information required prior to the City performing a review. The engineer will remain responsible to ensure the Technical Drainage Study is prepared within the guidelines as set forth in the CCRFCD Hydrologic Criteria and Drainage Design Manual (Design Manual).

An appointment must be made to preview this checklist in conjunction with CCRFCD Standard Form 2 prior to the City accepting a new drainage study for review. The engineer must contact the Flood Control Section at (702) 229-6541 to schedule a submittal appointment.

If items are not applicable for the subject site, provide N/A.

I. GENERAL REQUIREMENT		
Yes	No	
N/A		A notarized letter from the adjacent property owner(s) allowing off-site grading. (A copy of the letter must be received prior to final acceptance of the drainage study.)
	x	Copies of all conditions of approval for development related to this property. (e.g. zoning, use permit, tentative map, etc.) Verify compliance with conditions.
x		An electronic copy of the complete submittal is required to be submitted with one original hard copy of the study. Electronic documents should be on a universal computer-readable digital output device replicating your submittal. An Indexed Portable Document Format (PDF) or Print Ready CAD file formats with a minimum of 300dpi are the desired formats. If figures are in color, they must be scanned in color and saved as a separate file. _____ by initial here, the engineer on record acknowledges that the electronic copy is an identical replicate of the original hard copy submitted to the City of Las Vegas.

II. GRADING PLAN INFORMATION		
Yes	No	
x		(1) 24" X 36" copy of the Grading Plan, (including all Detail Sheets) sealed by the engineer.
x		Proposed future and existing spot grades for top of curbs and street crowns at lot lines, grade breaks, and along curb returns on both sides of the street. Note: Proposed top of curb elevations must be provided for both sides of roadways even if only half street construction is required.
x		Label existing topography at a minimum 5 foot elevation interval including adjacent developments, finished floor elevations of existing buildings and top of existing curbs extending 100 feet around the perimeter of the site. (*Measured from the centerline of the adjacent roadway.)

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

II. GRADING PLAN INFORMATION		
Yes	No	
N/A		Proposed on-site and off-site storm drains and other flood control facilities with plan and profile sheets for public storm drains showing the class of pipe, (Class III, IV, V, etc.), design hydraulic grade line, (HGL) and 100 year storm flow. A public drainage easement must be provided over on-site storm drains conveying off-site flows. An overflow path must be provided over all storm drains.
N/A		All existing and "to be constructed" walls with cross-sections showing wall type, (e.g. block wall, retaining wall, flood wall, etc.), with limits clearly defined, adjacent ground elevations. Wall heights must meet current ordinances and in no case exceed 14 feet above the adjacent property.
N/A		Street slopes for both interior and perimeter streets. Note: The minimum slope for a roadway is 0.4 percent, a minimum 18-inch storm drain must be provided where minimum slopes cannot be met.
N/A		Back of lot elevations and lot drainage pattern for all lots including common lots.
	x	Sites with a grade difference two feet above or below existing ground are required to have approval from City of Las Vegas Current Planning. Current Planning approval is required prior to final approval of the drainage study.
x		On-site facilities must perpetuate flows through or around the site without significantly impacting adjacent property owners. (The project must pass flows through the site every 600 feet where the project is blocking flow paths.)
x		This project uses a solid grouted stem wall (or approved alternate) at the back of sidewalk to provide erosion protection for landscaped areas where the depth of flow in the roadway exceeds the back of walk elevation. A corresponding cross-section detail is included.
x		Commercial and Common Lot Landscape areas are not allowed to drain over the sidewalk. The grading plans show flow lines with grades and sidewalk under drains for all landscape areas draining to the public ROW.

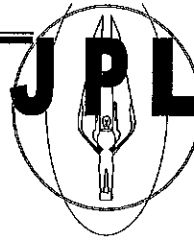
III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
N/A		Concrete valley gutters are required in parking lots with slopes less than 1 percent. Slopes through cul-de-sac must be at a 1 percent minimum where flow is drained through the cul-de-sac.
N/A		Ten-foot wide public drainage easements to be privately maintained are allowed for flow less than 20 cfs. The depth of flow entering the easement must be checked using the submerged weir calculation.
N/A		The limits of the flood zones and the base flood elevations (BFE) must be shown on all grading plans for all developments within a Special Flood Hazard Zone A, AO, AE, etc.
x		Minimum finish floor elevation is 6 inches above highest adjacent top of curb. Finish floor calculations must include allowances for super elevations on curves and velocity head for tee intersections.
N/A		Finished floor elevations for buildings adjacent to public drainage easements must be a minimum of 18 inches above the Q100 weir of submerged weir elevation, whichever is greater.

CITY OF LAS VEGAS MINIMUM DRAINAGE STUDY CRITERIA CHECKLIST

III. Local Entity Criteria - City of Las Vegas – Manual Section 1600		
Yes	No	
N/A		Lots with "B and C Type Drainage" that drain from one lot to another through a drainage easement shall be required to install an underground nuisance drainage system or a 2-foot valley gutter. 16" x 24" minimum block wall openings are required for both options.
N/A		Bubblers are required across 80 foot and greater ROW streets. When flows exceed 10 cfs, bubblers larger than 18 inches will be required up to a maximum of 36". Inlets must be sized to match the pipe size provided.

- Contact the Flood Control Section regarding the drainage study review fee. These fees are payable at the time of submittal.
- The Drainage Study must be conditionally approved prior to submitting improvement plans to the Civil and Planning Development of the Department of Building and Safety for review.

This document is intended as an aid in preparing Technical Drainage Studies for the City of Las Vegas. Each study submitted is reviewed for compliance with local and regional criteria. This form is not intended to be all-inclusive and does not limit the extent of the information, calculations or exhibits which may be necessary to properly evaluate the intended land use.



January 23, 2020

Mr. Albert Sung, P.E., CFM
Flood control Project Engineer
Department of Public Works
333 North Rancho Drive
Las Vegas, Nevada 89106

**RE: UPDATE 1 TO TECHNICAL DRAINAGE STUDY FOR TSC NORTH
DS5136A**

Mr. Sung:

This Update is due to a conflict with Las Vegas Valley Water District equipment and easement on the site. An RCP will be added on the southwest side of the site to bypass the easement/equipment. The onsite runoff draining into the RCP will drain from northwest to southeast.

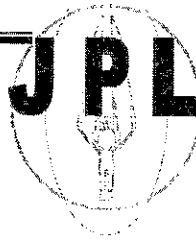
The amount of runoff that is assumed to enter the 12" RCP is approximately 0.6 cfs. The runoff was determined by the percentage of the onsite basin, ONX1, which flows into the swale. The flow from OND1 is referenced from the approved drainage study DS5136A. The overall drainage pattern remains the same. The runoff travels in the swale, then routes around the easement and flows back into the swale. The depth in the RCP is 0.4' with a velocity of 2.05 ft/s. The headwater depth for the 12" RCP is 7.08" determined using the Inlet Control RCP Nomograph, included in the back of the text. The runoff used for the calculation in the Nomograph is the lowest value listed of 1-cfs.

Included is the original grading plan and an updated grading plan.

Please contact JPL Engineering Inc. if you should have any further questions.

Sincerely,

Apolonio Roblero, E.I.T
Project Engineer



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FLOWMASTER CALCULATION

12" RCP STORM DRAIN
Worksheet for Circular Channel

Project Description	
Worksheet	12" RCP STORM DR
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

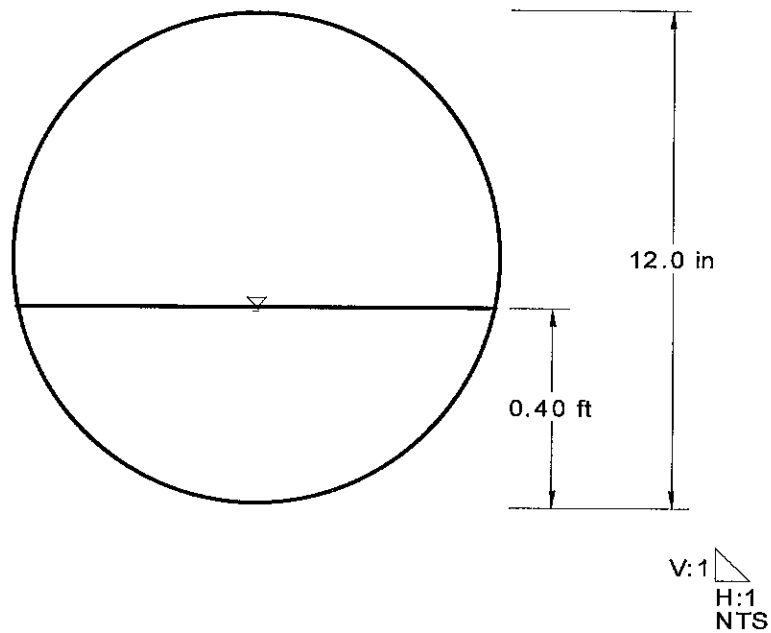
Input Data	
Mannings Coefficient	0.013
Channel Slope	0.2500 %
Diameter	12.0 in
Discharge	0.60 cfs

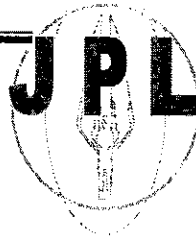
Results	
Depth	0.40 ft
Flow Area	0.3 ft ²
Wetted Perimeter	1.37 ft
Top Width	0.00 ft
Critical Depth	0.32 ft
Percent Full	40.0 %
Critical Slope	0.5623 %
Velocity	2.05 ft/s
Velocity Head	0.07 ft
Specific Energy	0.46 ft
Froude Number	0.66
Maximum Discharg	1.92 cfs
Discharge Full	1.78 cfs
Slope Full	0.0284 %
Flow Type	Subcritical

**12" RCP Cross Section
Cross Section for Circular Channel**

Project Description	
Worksheet	12" RCP STORM DR
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.013
Channel Slope	0.2500 %
Depth	0.40 ft
Diameter	12.0 in
Discharge	0.60 cfs



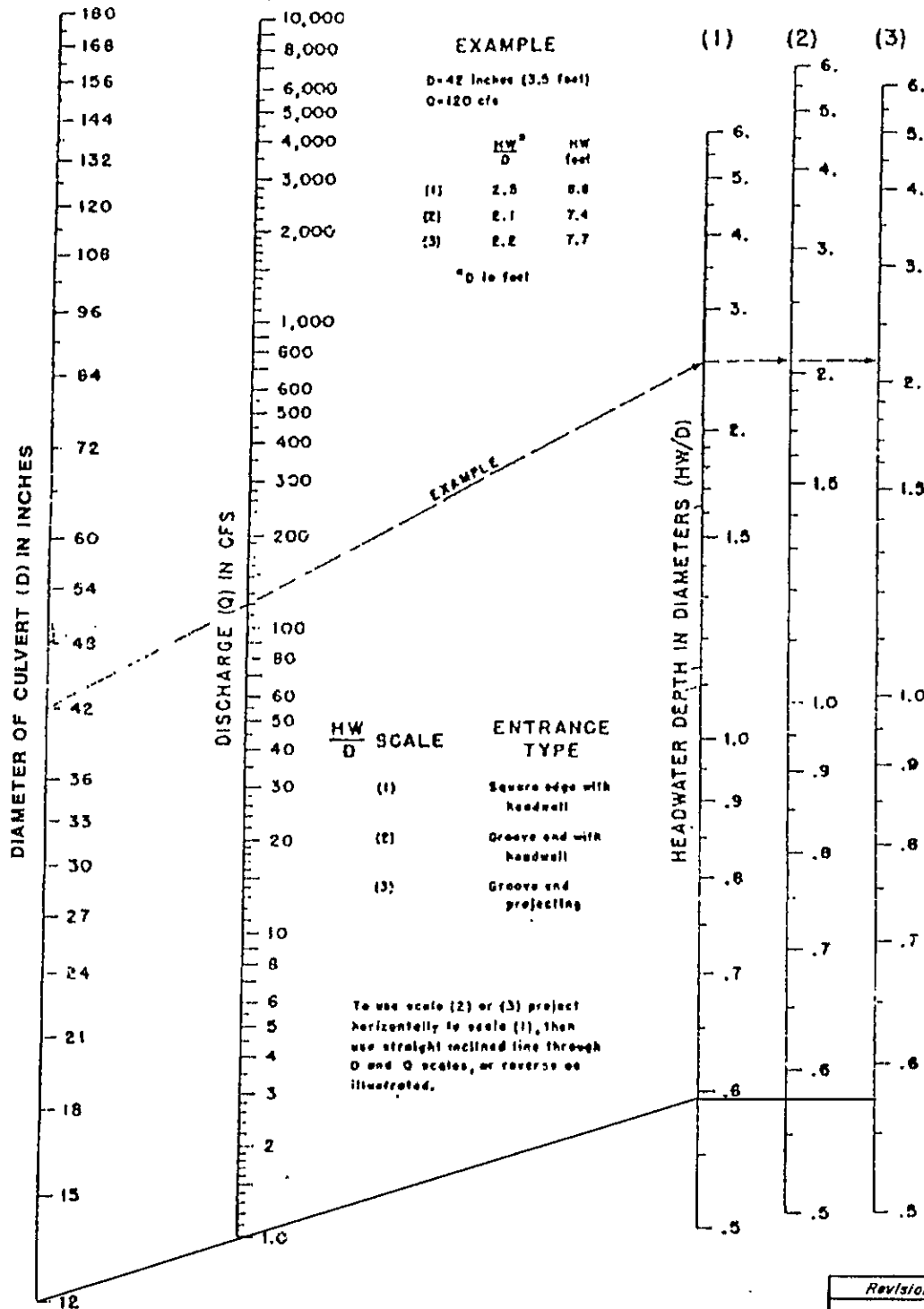


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RCB INCLET CONTROL NOMOGRAPH

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

NOMOGRAPH - INLET CONTROL RCP



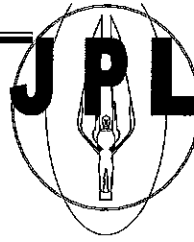
Revision	Date

WRC
ENGINEERING

REFERENCE:

USDOT, FHWA, HDS, No. 5, 1985

FIGURE 1005



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ONSITE BASIN DRAINAGE EXHIBIT

DRAINAGE BASINS

DRAINAGE BASIN	AREA (ARCES)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
OND1	3	5	10
SKY POINTE*	—	5	9
BASIN A*	.52	.65	1.38
BASIN C**	—	9.87	21.38
CPD1**	—	15.52	32.76

**CPD1=OND1+BASIN A+BASIN C
CPX2=OFFX3+ONX1

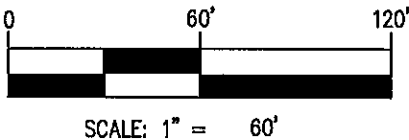
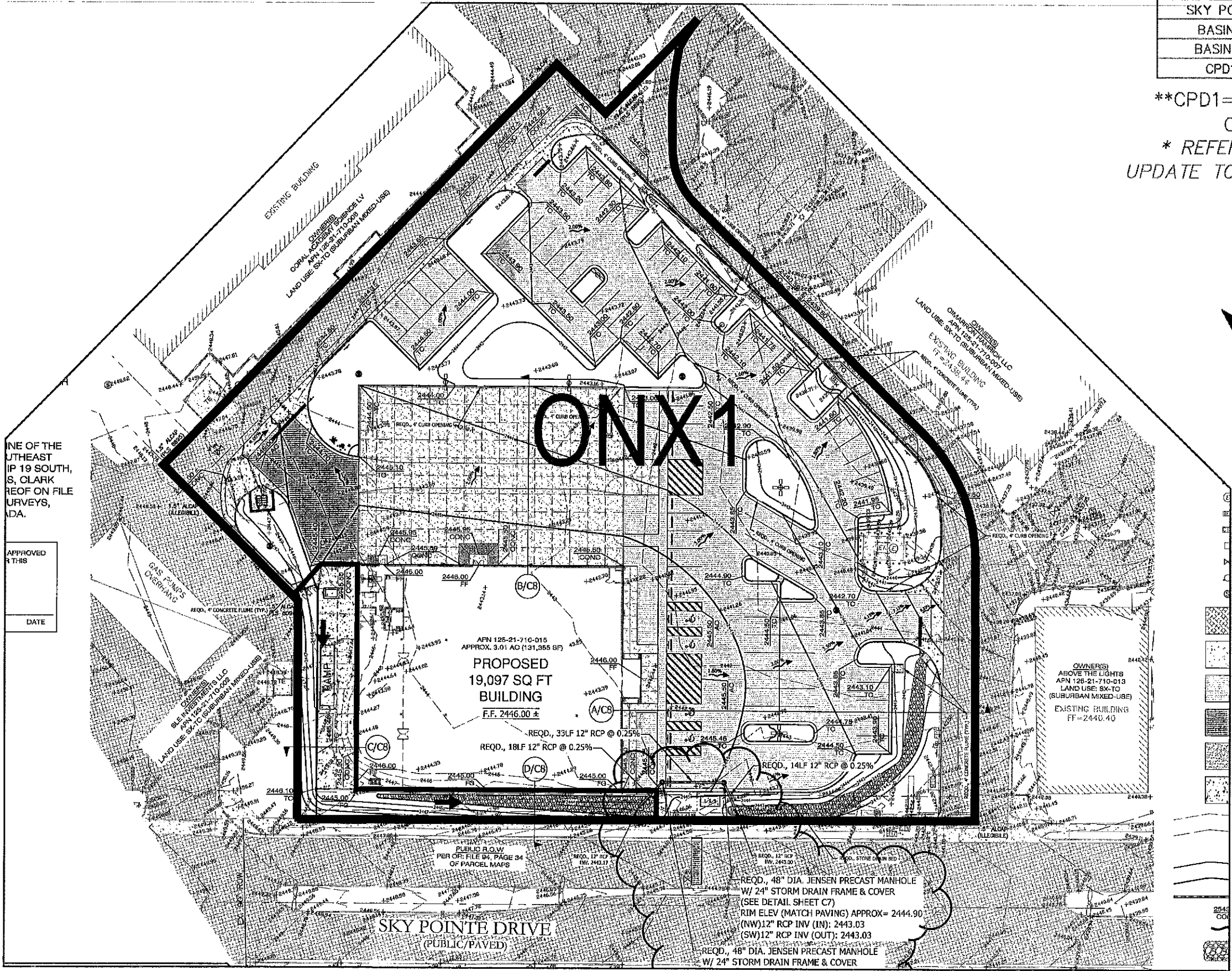
* REFERENCE FROM "TDS TO THE
UPDATE TO SOUTHERN NEVADA MUSIC"

JPL ENGINEERING INC.

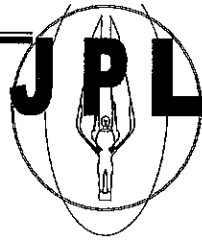
6725 S. EASTERN AVE, STE. 5, LAS VEGAS, NV 89119
PHONE (702) 898-6269 * FAX (877) 557-8292

TSC NORTH
ONSITE BASIN DRAINAGE
EXHIBIT

JANUARY 2020



Drains to RCP



ENGINEERING • ENVIRONMENTAL • SURVE
DESIGN • BUILD • CONSTRUCTION MANAGEM

Reference TDS TSC North Las Vegas JPL Engineering DS5136A August 2019

CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		August 5, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: TSC North Las Vegas	
Cross Streets:	NEQ of Sky Pointe Drive & Cimarron Road	
File Number:	F:\Depot\DSMemos\DS5136B.doc	
Parcel Number:	125-12-710-010 & 125-12-710-011	
Zoning Action:	SDR-75321	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X
COPIES TO:		JPL Engineering
		Red Hook Cimarron LLC
		Bart Anderson, P.E., DevCo

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	5/7/2019	5/28/2019	Not Approved	\$400.00	3124096: \$400
2 nd Submittal	7/11/2019	8/2/2019	See Comments Below	\$400.00	3486124: \$400
TOTAL FEES (LDDRS):				\$800.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. *Section C* and *Section D* in **Sheet C5**: Clearly label the proposed flood protection stem wall to be an 8"-thick CMU to be solid grouted to a minimum of 3-course from the adjacent finished grade or equivalent.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

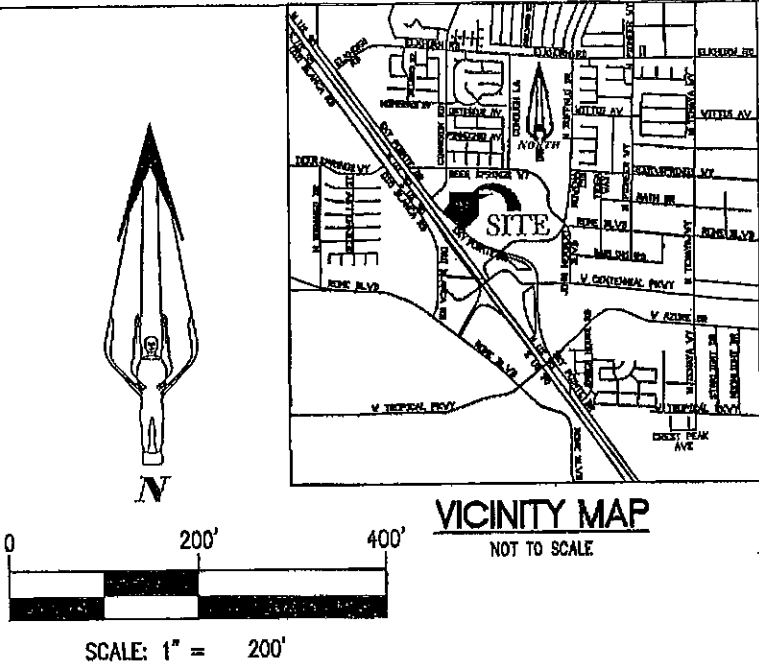
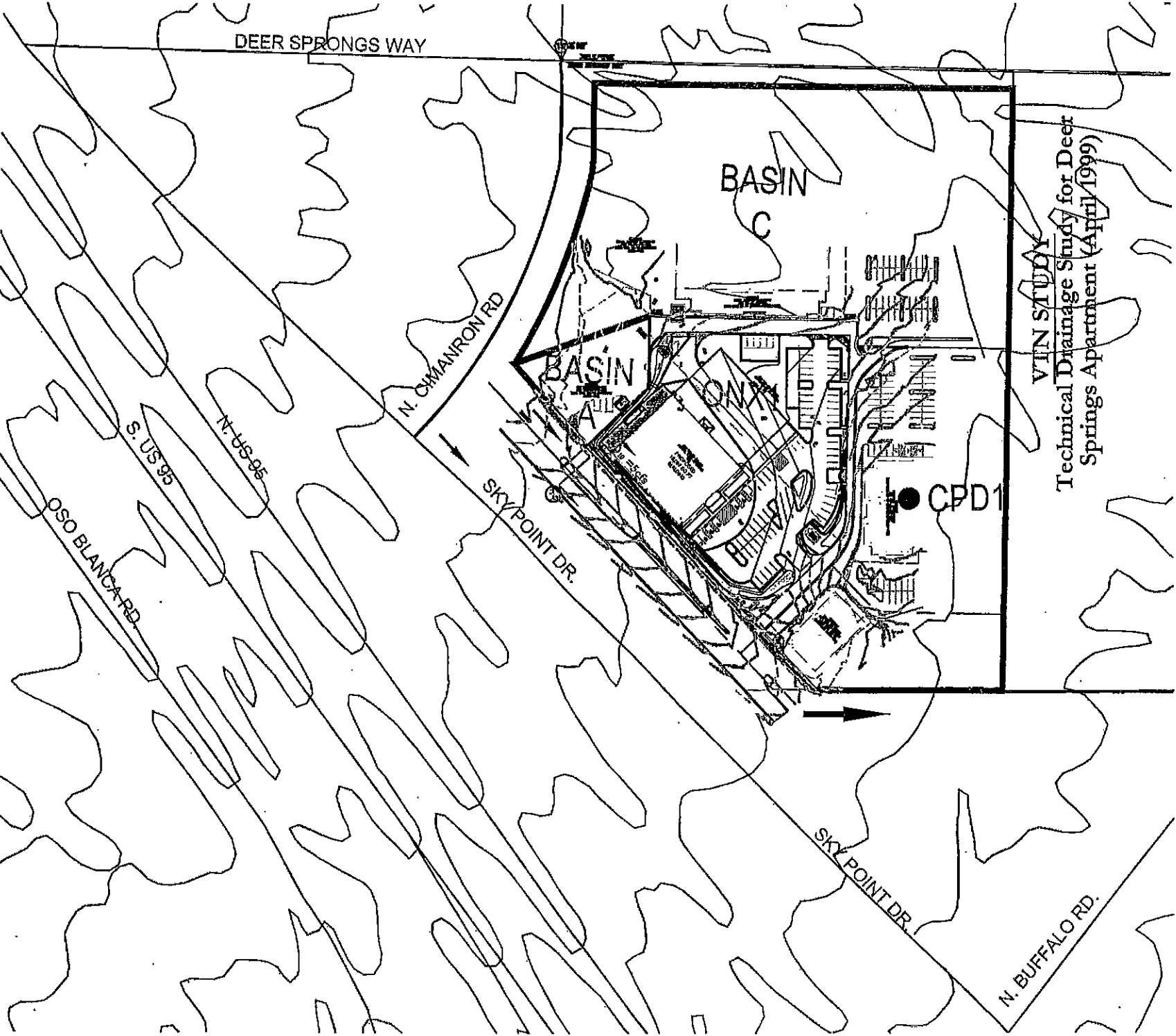
NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

ays

T/R/S: T19S/R60E/21
AREA G-21

STREET SECTION NAME	ROW (FT)	Q ₁₀₀ /Q ₁₀ (CFS)	D ₁₀₀ /D ₁₀ (FT)	V ₁₀₀ (FPS)	DxV	10-YR DRY LANE?
SKY POINTE DRIVE INTERIM CONDITIONS	81.2	9/5	0.33/0.28	3.06	1.01	YES



DRAINAGE BASINS			
DRAINAGE BASIN	AREA (ARCES)	Q ₁₀ (CFS)	Q ₁₀₀ (CFS)
OND1	3	5	10
SKY POINTE*	—	5	9
BASIN A*	.52	.65	1.38
BASIN C**	—	9.87	21.38
CPD1**	—	15.52	32.76

**CPD1=OND1+BASIN A+BASIN C
CPX2=OFFX3+ONX1
* REFERENCE FROM "TDS TO THE UPDATE TO SOUTHERN NEVADA MUSIC"

- LEGEND**
- ON1X Basin Name
 - Flow Arrow
 - Basin Boundary

NOTE:
-SEE GRADING PLAN SHEETS FOR DETAILED CONTOURS AND PRECISE GRADING

TSC SOUTH LAS VEGAS
OFFSITE AND ONSITE DEVELOPED CONDITION
DRAINAGE BASIN EXHIBIT

JPL ENGINEERING INC.
6725 S. EASTERN AVE., STE. 15, LAS VEGAS, NV 89119
PHONE (702) 898-6268 FAX (877) 567-8292

NOTES TO CONTRACTOR:

1. EVERY EFFORT HAS BEEN MADE TO ENSURE THAT THE BUILDING INDICATED IN THESE DRAWINGS MATCHES THE ARCHITECTS LATEST BUILDING AND FOUNDATION PLAN. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONFIRM THE AGREEMENT BETWEEN THE BUILDING FOOT PRINT SHOWN IN THESE PLANS AND THE ARCHITECTS BUILDING FOOTPRINT AND FOUNDATION PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND.
2. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ANY EXISTING SLOPES AND INFRASTRUCTURES ON THE SITE (I.E. PONDS, INLETS, ETC.).
3. CONTRACTOR TO VIDEO ALL EXISTING SEWER AND DRAIN LINES TO ENSURE THEY ARE CLEAR AND IN PROPER WORKING ORDER. PROVIDE VIDEO TO THE OWNER.
4. AFTER THE STORM DRAIN SYSTEM IS COMPLETED THE CONTRACTOR SHALL VIDEO THE SYSTEM AND SUBMIT VIDEO TO THE OWNER FOR REVIEW.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO THE SITE FOR THE DURATION OF THE PROJECT.
6. ALL EARTHWORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH GEOTECHNICAL RECOMMENDATIONS.
7. ALL CONDUIT LOCATIONS FOR POWER, TELEPHONE, AND CABLE SHALL BE COORDINATED WITH ARCHITECTURAL PLANS AND LOCAL UTILITY PROVIDERS.

NOTE:

PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES SUCH AS, BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF THE VEGETATION.

BENCHMARK INFORMATION:

CITY OF LAS VEGAS BENCHMARK #BLV9021C4 BEING A RIVET AND PLATE IN THE NORTHWEST CORNER OF DEER SPRINGS WAY AND CIMARRON ROAD. ELEV = 2540.79

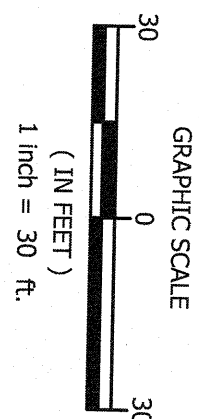
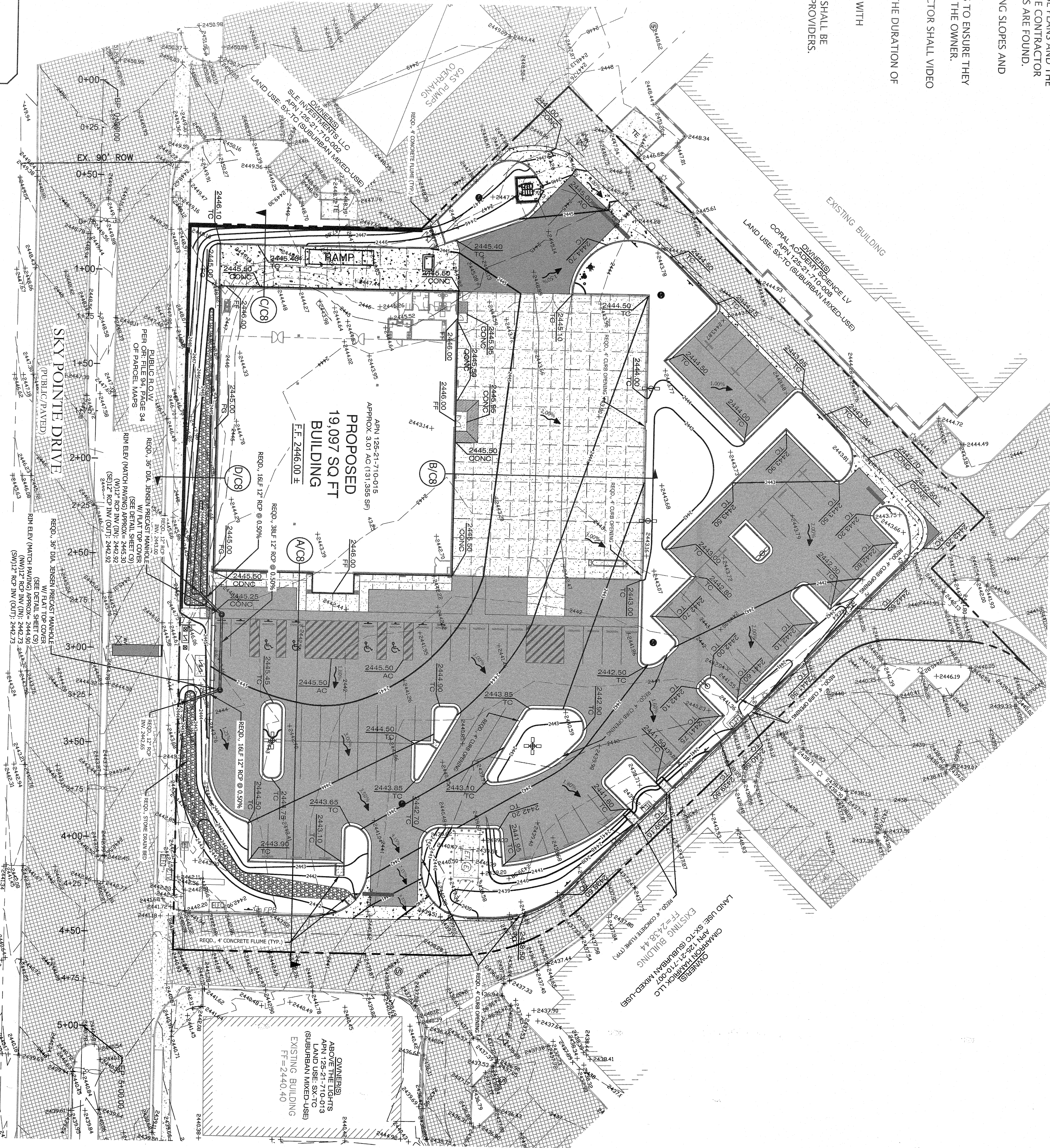
BASIS OF BEARING:

SOUTH 88.3419° EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 80 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN FILE 141 PAGE 82 OF PARCEL MAPS OF SURVEYS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

I CERTIFY THIS GRADING PLAN IS IN CONFORMANCE TO THE APPROVED DRAINAGE STUDY ON FILE WITH THE CITY OF LAS VEGAS FOR THIS PROJECT.

PERRY CLYDE JINRIGHT, III PE NO. 25907

1/22/24
DATE



LEGEND

- FOUND MONUMENT AS NOTED
- SET 1-1/2" AL CAP OR NAIL & BRASS TAG
- STAMPED PLS 10114
- RIGHT-OF-WAY
- CENTERLINE
- PROPERTY LINE
- PROPERTY LINE (ADJACENT)
- EXIST. EASEMENT LINE
- EXIST. WATER LINE
- EXIST. SANITARY SEWER LINE
- PROPOSED SETBACK LINE
- PROPOSED EASEMENT LINE
- PROPOSED 24" CONCRETE CURB & GUTTER
- PROPOSED 6" CONCRETE CURB
- EXIST. STREET LIGHT
- EXIST. LIGHT POLE
- EXIST. ELECTRICAL PULL BOX
- EXIST. ELECTRICAL TRANSFORMER
- EXIST. ELECTRICAL VAULT
- EXIST. ELECTRICAL MANHOLE
- EXIST. TELEPHONE VAULT
- EXIST. CABLE TV VAULT
- EXIST. CABLE TV BOX
- EXIST. WATER VALVE
- EXIST. FIRE HYDRANT
- EXIST. SANITARY SEWER MANHOLE
- EXIST. ASPHALT PAVING
- EXIST. CONCRETE
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED HEAVY DUTY CONCRETE (BROOM FINISH)
- PROPOSED HEAVY DUTY CONCRETE (BROOM FINISH)
- EXIST. 1 FOOT COUNTOUR
- EXIST. 5 FOOT COUNTOUR
- EXIST. GRADE SPOT ELEVATION
- PROPOSED 1 FOOT COUNTOUR
- PROPOSED 5 FOOT COUNTOUR
- PROPOSED STORM PIPE
- FINISHED GRADE ELEVATION
- DRAINAGE DIRECTION
- PROPOSED STONE DRAIN BED

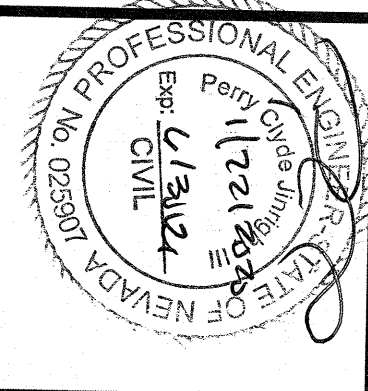
SURVEY PROVIDED BY:

HMSurveying Inc



Tractor Supply Company
6658 Sky Pointe Drive
Las Vegas, Nevada 89131

NO.	REVISION	DATE	APPR.



Jinright & Associates Development Engineers
208 Greeno Road North Fairhope, Alabama 36532
P.O. Box 1929 Fairhope, Alabama 36533
251.928.3443 (tel) 251.928.3665 (fax)
jadengineers.com

JADE
CONSULTING, LLC

FAST
Call before you UnderGround
1-702-483-5300
FINDING AND REMEDIATING
SITES OF CONTAMINATION

UTILITY NOTE
UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND COORDINATING WITH ALL UTILITY PROVIDERS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL UTILITIES AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND SHALL REPAIR OR REPLACE ANY UTILITIES DAMAGED BY THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE SITE AND SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE SITE AND SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION.

CALL BEFORE YOU DIG
1-800-227-2800
FINDING AND REMEDIATING
SITES OF CONTAMINATION

CALL BEFORE YOU DIG
1-800-227-2800
FINDING AND REMEDIATING
SITES OF CONTAMINATION

CITY # 1130215 CIVIL 07/08/05
SCALE: 1" = 30'
DWG: GRADING/DRAINAGE
DATE: JAN 2020
DRAFTER: CMD
SHEET 6 OF 12

NOTES TO CONTRACTOR:

1. EVERY EFFORT HAS BEEN MADE TO ENSURE THAT THE BUILDING INDICATED IN THESE DRAWINGS MATCHES THE ARCHITECTS LATEST BUILDING AND FOUNDATION PLAN. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CONFIRM THE AGREEMENT BETWEEN THE BUILDING FOOT PRINT SHOWN IN THESE PLANS AND THE ARCHITECTS BUILDING FOOTPRINT AND FOUNDATION PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES ARE FOUND.
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NOTE:

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BENCHMARK INFORMATION:

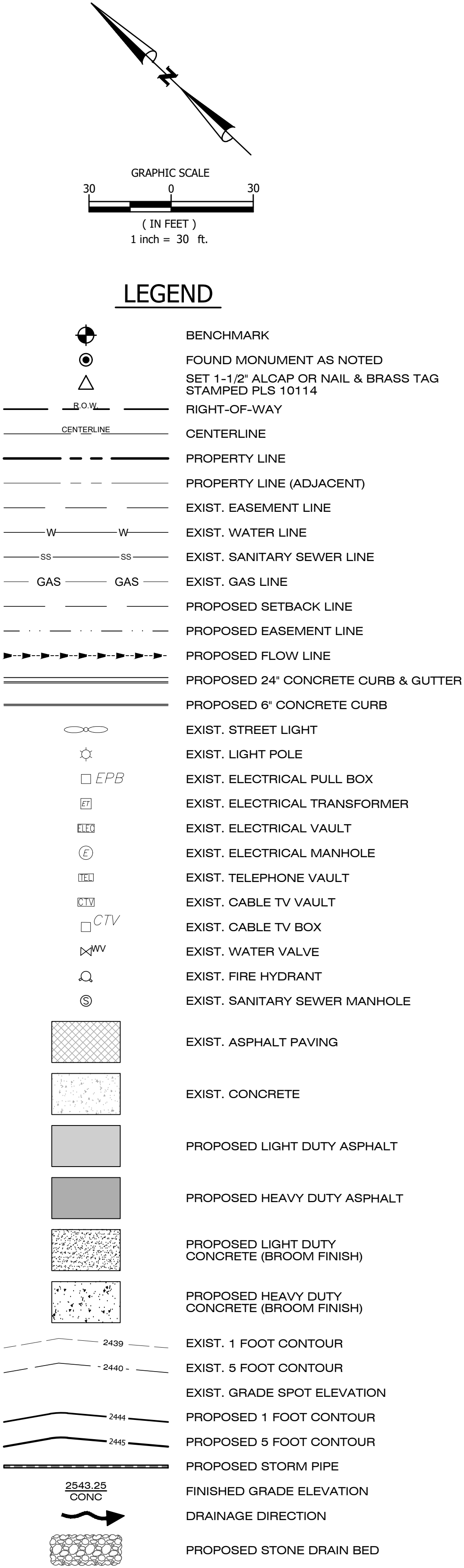
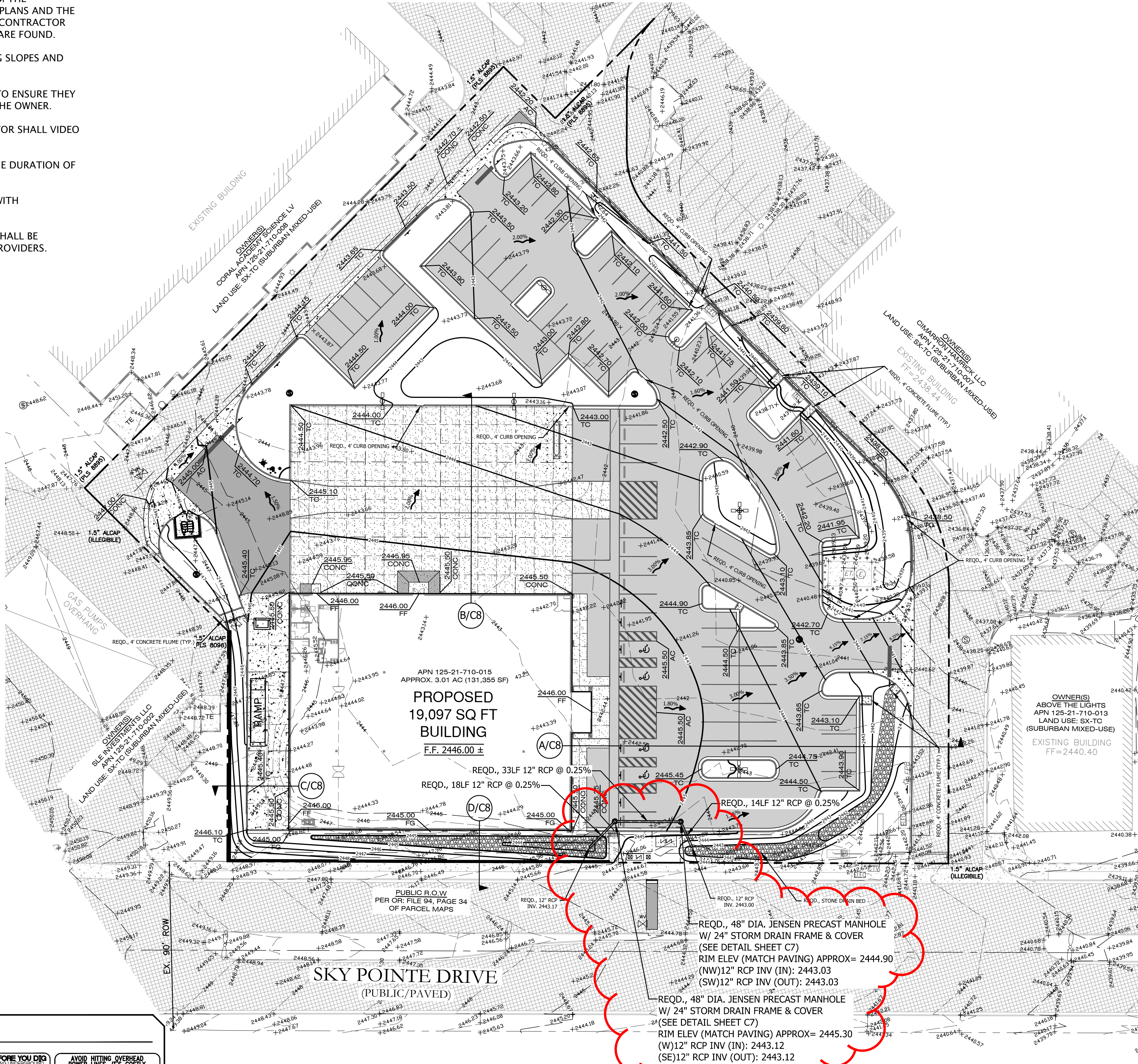
CITY OF LAS VEGAS BENCHMARK #8LV902104 BEING A RIVET AND PLATE IN THE NORTHEAST CORNER OF DEER SPRINGS WAY AND CIMARRON ROAD. ELEV = 2540.79'

BASIS OF BEARING:

SOUTH 88°34'19" EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 21, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY NEVADA, AS SHOWN BY MAP THEREOF ON FILE IN FILE 141 PAGE 82 OF PARCEL MAPS OF SURVEYS, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

I CERTIFY THIS GRADING PLAN IS IN CONFORMANCE TO THE APPROVED DRAINAGE STUDY ON FILE WITH THE CITY OF LAS VEGAS FOR THIS PROJECT.

PERRY CLYDE JINRIGHT, III PE NO. 25907 DATE



UTILITY NOTE

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

CALL BEFORE YOU DIG
CALL 811
1-800-227-2600

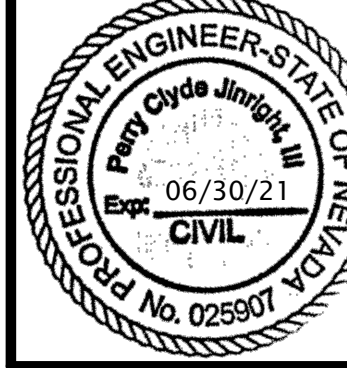


SURVEY PROVIDED BY:

HMH Surveying Inc

JADE
CONSULTING, LLC

Jinright & Associates Development Engineers
208 Greeno Road North Fairhope, Alabama 36532
P.O. Box 1929 Fairhope, Alabama 36533
251.928.3443 (cell) 251.928.3065 (fax)
jadeengineers.com



NO.	REVISION	DATE	APPR.

Tractor Supply Company
6658 Sky Pointe Drive
Las Vegas, Nevada 89131



CLV #: L19-02145, CLV# 107V8075
SCALE: 1" = 30'
DWG: GRADING/DRAINAGE
DATE: JAN 2020
DRAFTER: GMD
C5
SHEET 6 OF 11

1. THE CONTRACTOR IS TO VISIT THE SITE AND VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE DIGGING AND STARTING WORK. THE ARCHITECT AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY BY THE CONTRACTOR OF ANY DISCREPANCY OR DISCREPANCY BEFORE ANY WORK IS BEING DONE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING WORK. NO EXTRA COST TO THE CONSTRUCTION CONTRACTOR.
2. SHOULD CONFLICT AND/OR DISCREPANCY APPEAR NOW BETWEEN THE CONTRACTOR'S INTERPRETATION OF WORK PERFORMED BY OTHERS, WHICH AFFECTS THE WORK, THE CONTRACTOR IS TO NOTIFY THE ARCHITECT, ENGINEER AND/OR OWNER IN WRITING AT ONCE AND RECEIVE FOR PROCEED PRIOR TO RESUME OF THE ARCHITECT'S, ENGINEERS' AND/OR OWNERS WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL MAKE GOOD AND CORRECT ANY INSTRUCTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXTRA COST TO THE CONSTRUCTION CONTRACTOR FOR SUCH CORRECTIONS.
3. SHOULD CONFLICT AND/OR DISCREPANCY APPEAR NOW BETWEEN THE DRAWINGS AND SPECS, IT IS DEEMED THE CONTRACTOR'S METHOD ON MATERIAL INVOLVED UNLESS THE CONTRACTOR HAD ASKED FOR AND RECEIVED WRITTEN DECISIONS FROM THE ARCHITECT, ENGINEER AND/OR OWNER PRIOR TO BEING EMPLOYED. NO EXTRA COST TO THE CONSTRUCTION CONTRACTOR. THE ARCHITECT, ENGINEER AND/OR OWNER SHALL BE ALLOWED FOR THESE ITEMS.
4. SHOULD DIMENSIONAL ERRORS OCCUR, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT, ENGINEER AND/OR OWNER IMMEDIATELY. THE CONTRACTOR SHALL TAKE PRECEDENCE OVER SCALE MEASUREMENTS AND DETAIL DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL SMALL SCALE DIMENSIONS. DETAILS REPRESENTATIONS DRAWING SHALL BE USED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO BEGINNING WORK. NO EXTRA COST TO THE CONSTRUCTION CONTRACTOR.
5. THE CONTRACTOR IS TO CONSIDER ALL ACCESS EWAYS AND AREAS ARE NOTING THE ARCHITECT, ENGINEER AND/OR OWNER IN WRITING AT ONCE AND RECEIVE FOR PROCEED PRIOR TO RESUME OF THE ARCHITECT'S, ENGINEERS' AND/OR OWNERS WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL MAKE GOOD AND CORRECT ANY INSTRUCTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXTRA COST TO THE CONSTRUCTION CONTRACTOR FOR SUCH CORRECTIONS.

[illegible][illegible]

ALL VEGAS FIRE DEPARTMENT SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE DEPARTMENT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.

ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRIBUTION SYSTEM SHALL BE ALLOWED TO BE INSTALLED.

A. PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ONE-SIDE WATER MAINS AND TWO-SIDE WATER MAINS. A PERMIT SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC § 106.6.15

B. ALL APPARATUS, OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER. IFC § 331.2.1

C. TO IDENTIFY THE FIRE HYDRANT LOCATION, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANT. IFC § 307.6.7.9

D. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATION OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTRAL LOGGING IS REQUIRED FOR THE TYPICAL TESTS CONCERNING THE FIRE HYDRANT APPROVAL. IFC § 106.8

E. ALL NEW UNDERGROUND WATER MAINS AND MATERIAL SHALL BE UL LISTED. A W/S/A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC § 307.2.1.1, NFPA 24

F. PAINTING OF CURBS, FIRE HYDRANTS, PAPS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER THE CITY OF LAS VEGAS FIRE DEPARTMENT SHALL BE COMPLETED BY THE FIRE PROTECTION DIVISION. IFC § 307

G. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 307.6.7.1

H. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY THE CITY OF LAS VEGAS FIRE AND RESCUE. FIRE PREVENTION DIVISION WILL VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 307

I. FIRE UNDERGROUND SPACING SHALL BE AS FOLLOWS:

1. RESIDENTIAL - 300 FT UNSPRINKLED, 400 FT SPRINKLERED, COMMERCIAL - 300 FT UNSPRINKLED, 400 FT SPRINKLERED.

J. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT REQUIRED AT A MINIMUM OF 100' FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS, WHERE STREETS ARE PROVIDED WITH MEDIAN DRIVERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC § C102.8

K. NO FIRE HYDRANT SHALL BE LOCATED WITHIN THE RADUS OF A CUL-DE-SAC OR WITHIN 20 FT OF THE BEGINNING OF THE RADUS OF THE CUL-DE-SAC.

L. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC § C102.10

M. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.4

N. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.7

O. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6

P. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS A OR MORE THAN ONE SOURCE OF SUPPLY LEADING ARE INSTALLED ON A SINGLE SYSTEM FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL, VALVES SHALL BE INSTALLED SO THAT IN CASE OF SERVICE DUE TO A SERVICE INTERRUPTION, FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL, VALVES SHALL BE INSTALLED SO THAT NO OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC § C104

Q. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPROVED LOADS OF THE FIRE APPARATUS. IFC § 606.2.2

R. THE GRADE FOR THE FIRE APPARATUS ACCESS ROAD SHALL NOT EXCEED 12% ANGLES OF APPROACH AND THE GRADE CHANGE ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC § 303.2.8

S. THE TURNING RADUIS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 32 FT OUTSIDE AND 28 FT INSIDE TURNING. IFC § 303.2.4

T. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 16'6 IN. IFC § 303.2.1

U. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM WIDTH OF NOT LESS THAN 28 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB, NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB AND FACE OF FIRE LINES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 303.2.1.1, IFC § 303.2.1.1, IFC § 303.2.1.1

V. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR FIRE HYDRANT VEHICLE ACCESS. IFC § 503.1.1

W. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, HOUSES WITH DETACHED AND MOU OR ACCESS IN DWELLINGS OF 600 FT². IFC § 503.1.1

X. ALL DEAD-END FIRE APPARATUS ROADS AND/OR FIRE LINES, PUBLIC OR PRIVATE, IN EXCESS OF 160 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 8 FT. CIV REGULATION

Y. ALL APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE POINT OF SIGNALS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LINES, SIGNS TO BE PLACED ON EITHER SIDE OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON BOTH SIDES. SIGNS SHALL BE INSTALLED WITHIN 100 FT OF THE POINT OF INTERSECTION. IF NO CURB IS PROVIDED, SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC § 303.3

Z. ELECTRICAL Y CONTROL LED ACCESS LIGHTS SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER IFC § 303.6

AA. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAFFIC LANE, HYDRANTS BEING INSTALLED TO DELIVER FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CIV REGULATION

REMOVED 2/4/20

DEVIATIONS FROM STANDARDS

NOTE:

[illegible][illegible]

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADDED AND SLOPES SHOWN.

3. EXISTING SLOPING SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. EXISTING CONTRACTOR SHALL BE DESIGNED AND NOT FOR FACILITIES AND ADVISORY ADVANTAGE FEATURES OF FACILITIES AND/OR CAVING OF THE EXCAVATION.

4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT OBTAINED. THEREFORE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OBTAINMENT OF EXCESS MATERIAL, FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.

5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.

6. THE CONTRACTOR SHALL GRAB TO THE LINES AND ELEVATIONS SHOWN ON THE DRAWING, ALLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED.

A. FINISHED AREA SUBGRADE 0.71' 10.0 TO 10.1' SEE SOIL REPORT

B. ENGINEERED FILL 0.54' 10.0 TO 10.1' SEE SOIL REPORT

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.

8. THE USE OF PORTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION OF DITCHES OR DRAINAGE STRUCTURES IS PROHIBITED. NO CONSTRUCTION OF DITCHES OR DRAINAGE STRUCTURES SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.

9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL UTILITIES IN A SAFE AND SOUND CONDITION, AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES, SLOPES, CUTS OF SOIL, ROCK OR CONSTRUCTION DEBARNS SHALL BE PROPERLY REMOVED FROM THE PUBLIC OWNED PROPERTY DURING CONSTRUCTION. THE PROTECTION OF PUBLIC SHALL BE MAINTAINED IN A CLEAR, SAFE AND USABLE CONDITION.

10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE, OWNERS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER, TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERM, ROAD SIGNAGE AND BARRICADES, ETC.

LVAMD PROJECT # 132072 (REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE PLANT PLANS HAVE BEEN APPROVED BY THE LVAMD. FOLLOWING WATER PLANT APPROVAL, NOTICES OF WORKING DAYS OF CONSTRUCTION FOR PORTHOLE INSPECTIONS, NOTICE MUST BE GIVEN BY 21 DAY PRIOR TO THE REQUESTED LVAMD INSPECTION, WHEN REQUESTING REFER TO THE PROJECT # IDENTIFIED ABOVE.

2. ALL WORK SHALL CONFORM TO THE LVAMD STANDARD PLATES, DRAWINGS, SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND STANDARDS FOR PORTABLE WATER SYSTEMS (UDSOS). THE LATEST EDITION OF THE UNIFORM DESIGN AND STANDARDS FOR PORTABLE WATER SYSTEMS (UDSOS) SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AT THE PROJECT AREA.

3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OF BY NOTE 2 ABOVE, SHALL BE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT AREA.

4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS APPROVED BY THE LVAMD.

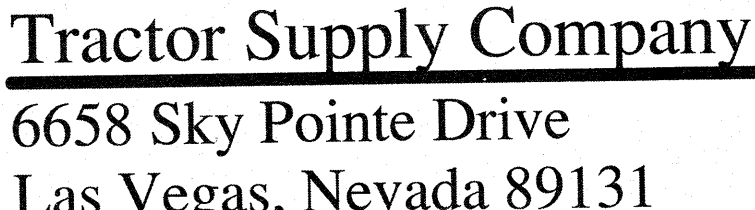
5. ALL SERVICE LATERALS 24" INCHES IN DIAMETER AND SMALLER SHALL BE 12" MINIMUM DEPTH.

6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE DRIVEWAYS AND SHALL BE LOCATED WITHIN LVAMD APPROVED SERVICE SADDLES.

7. ALL VALVES SHALL BE LOCATED OUTSIDE DRIVEWAYS, VALLEY AND CULVERTS.

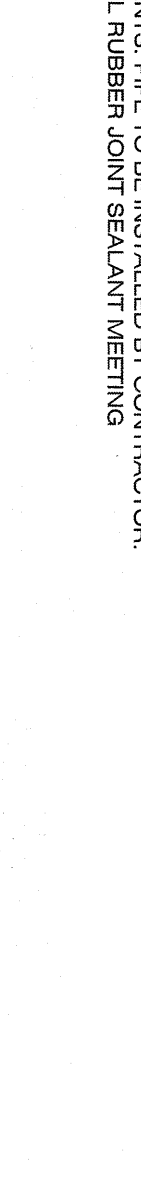
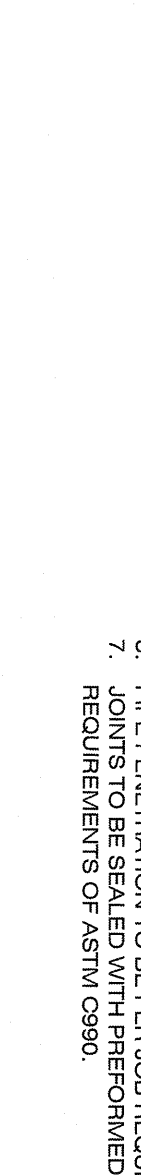
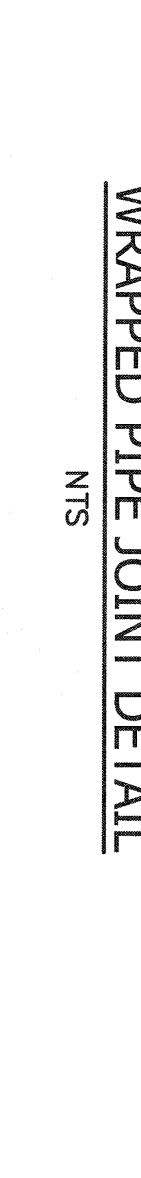
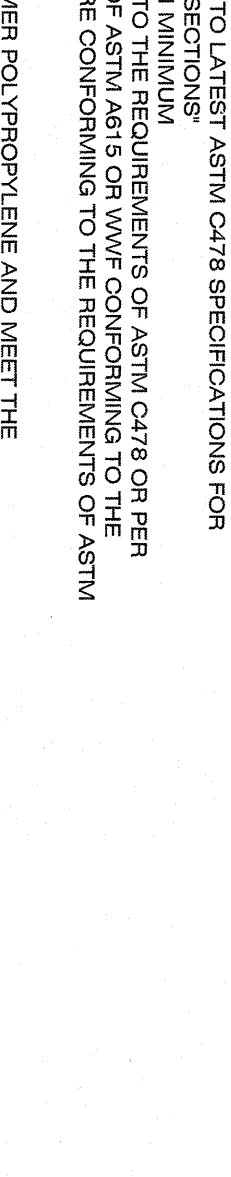
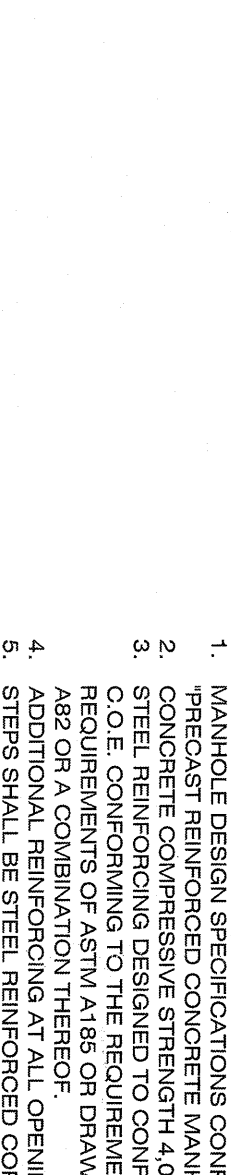
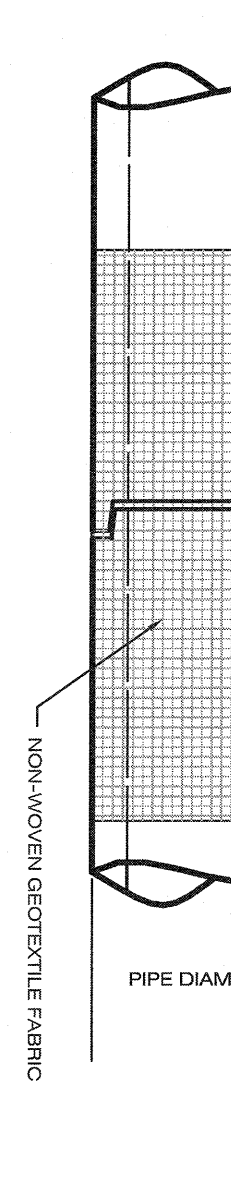
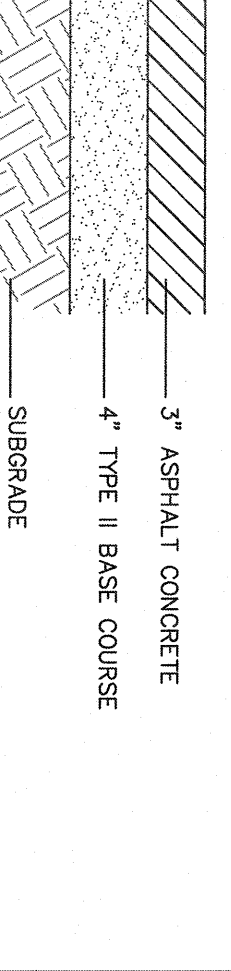
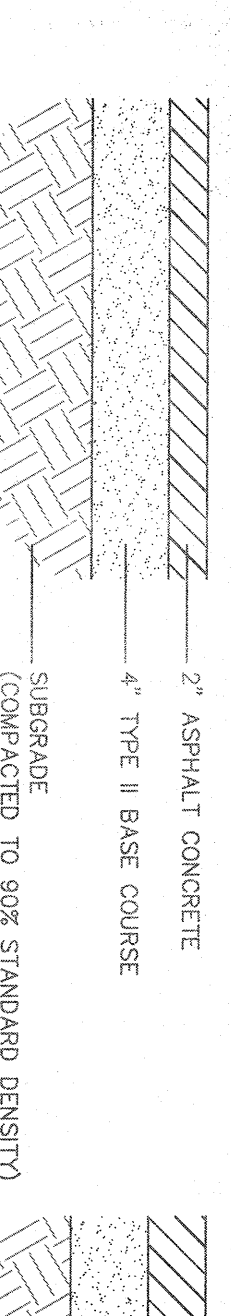
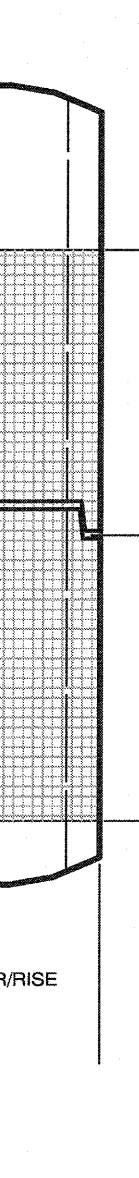
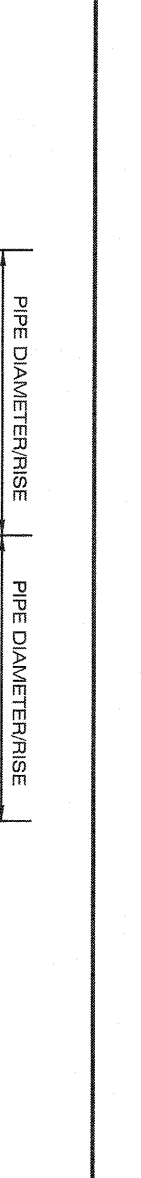
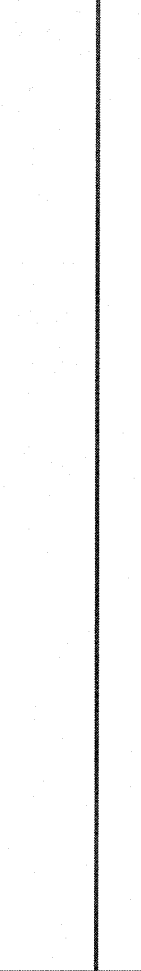
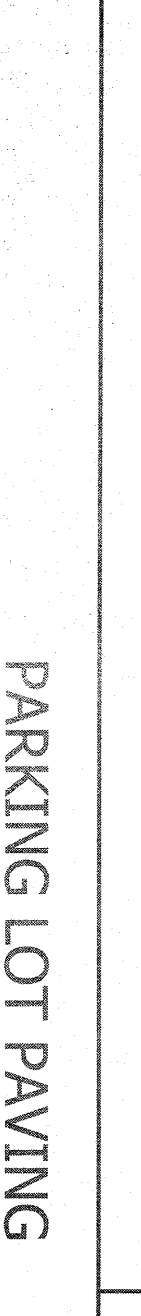
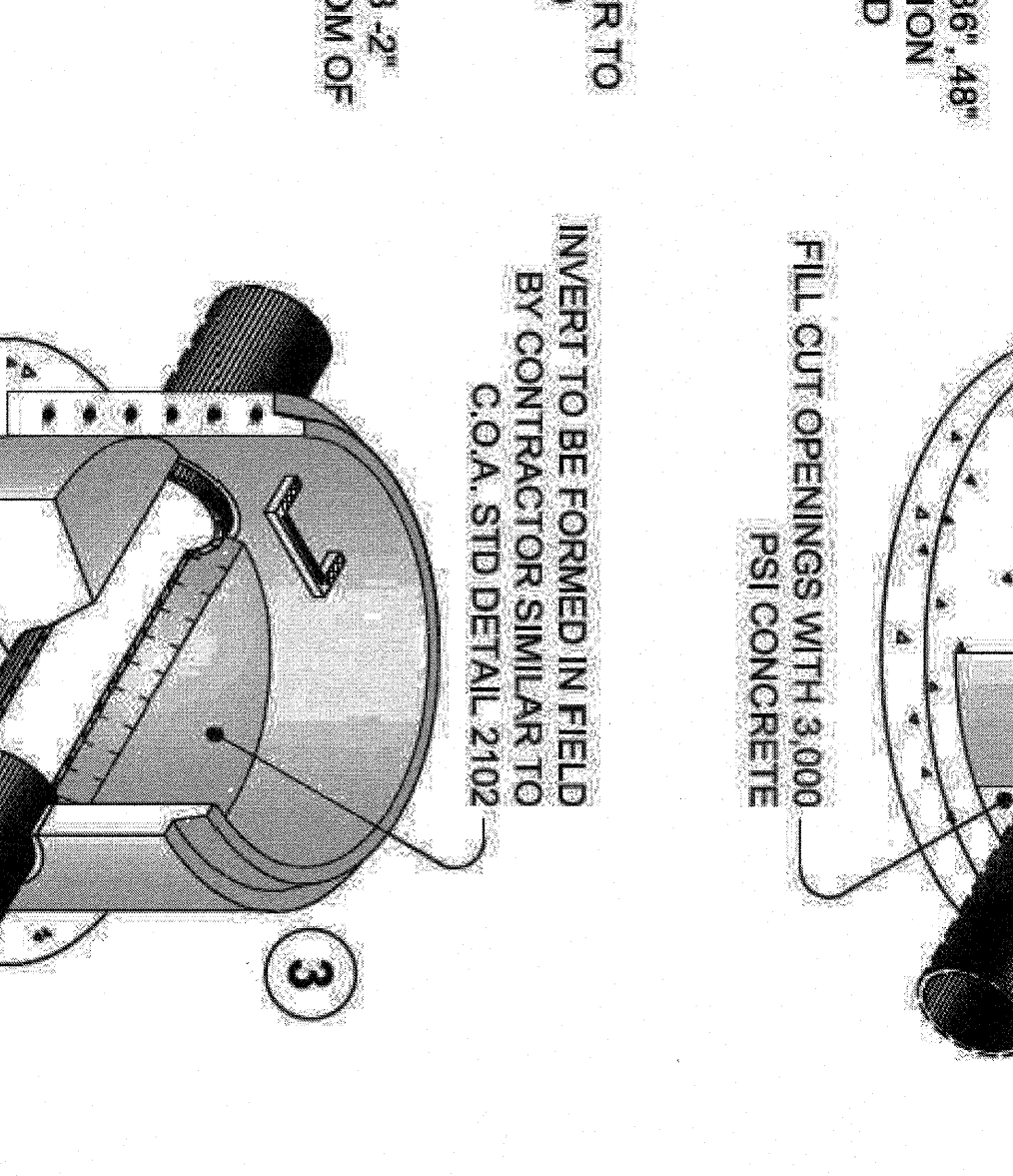
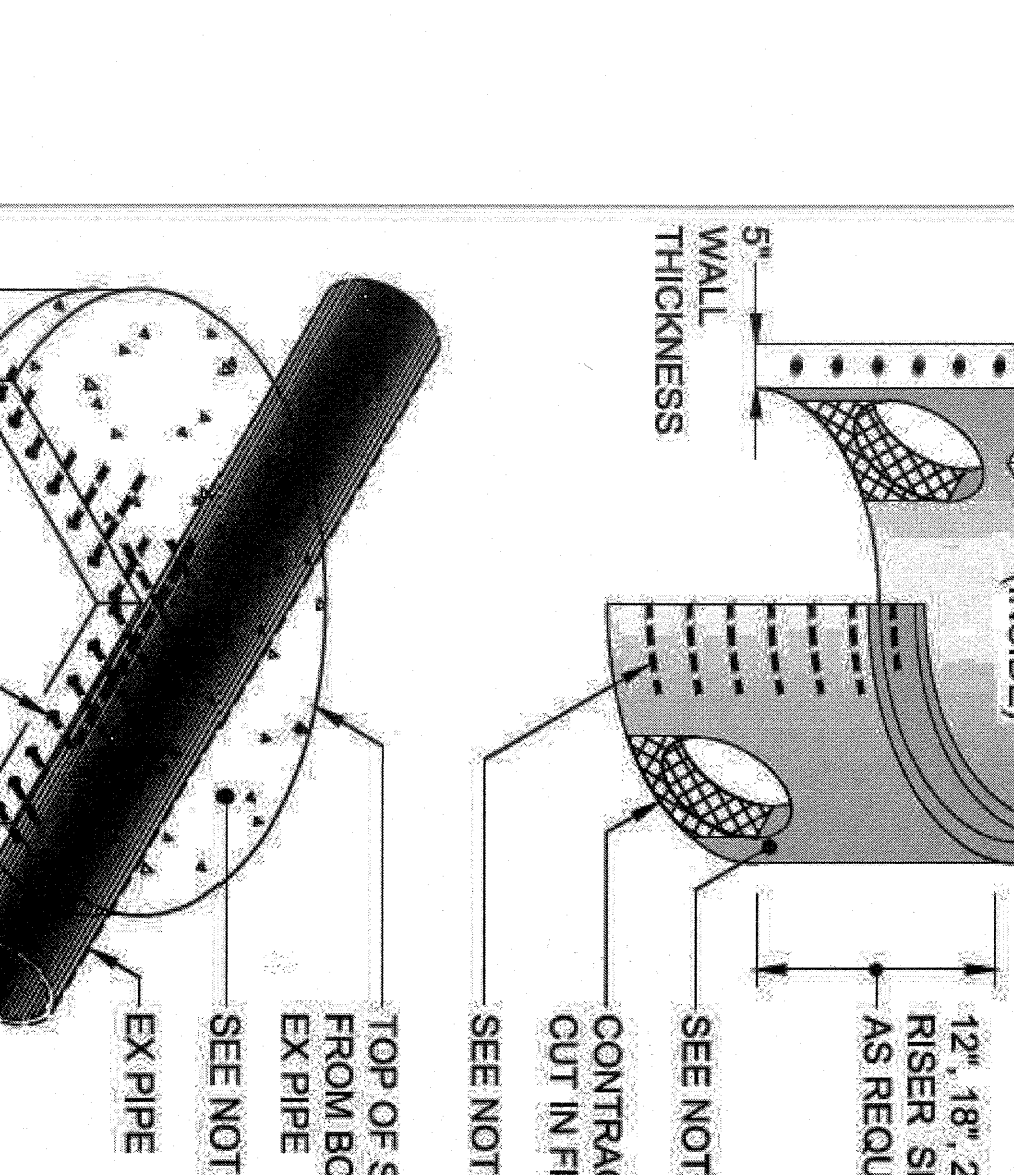
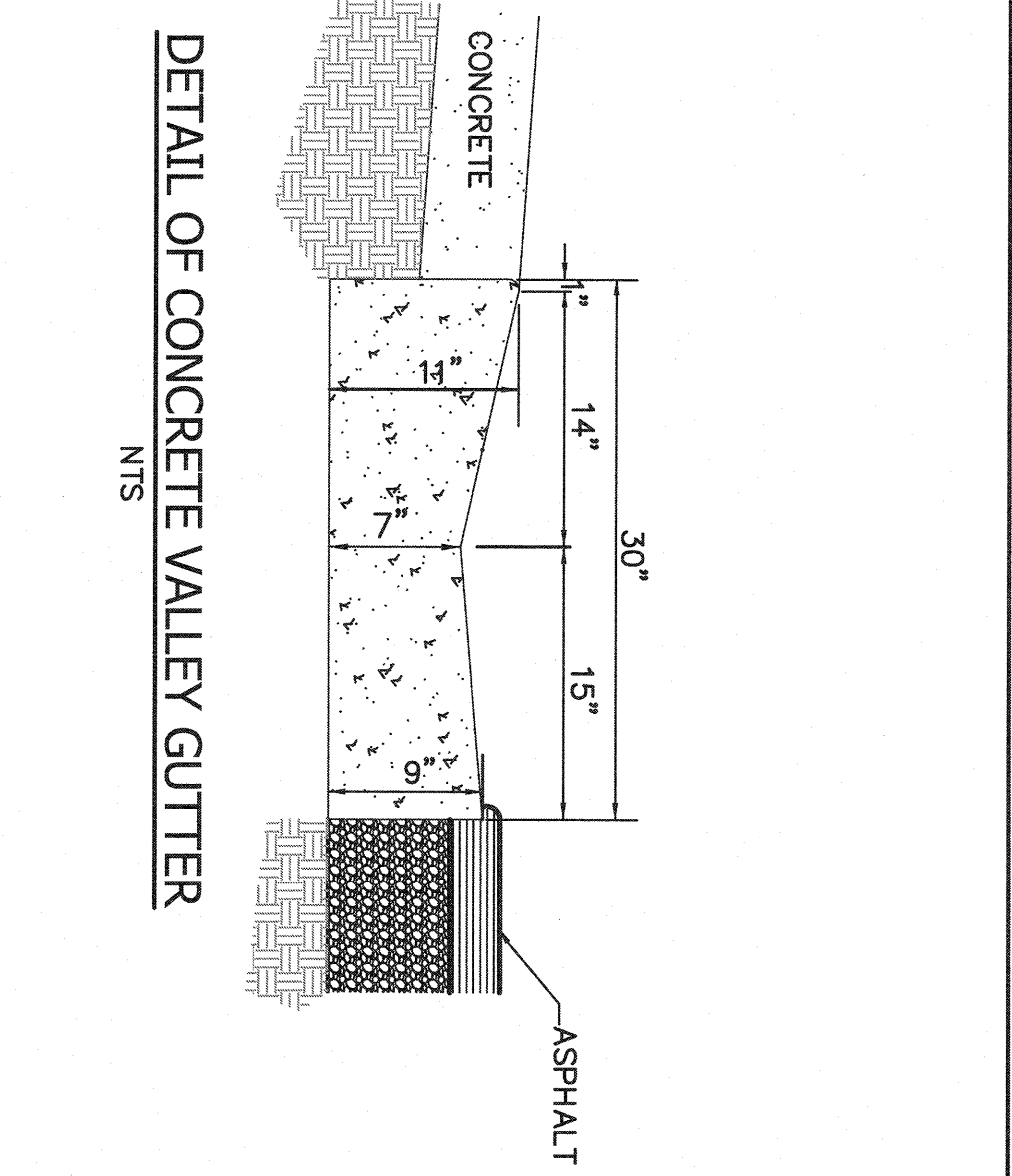
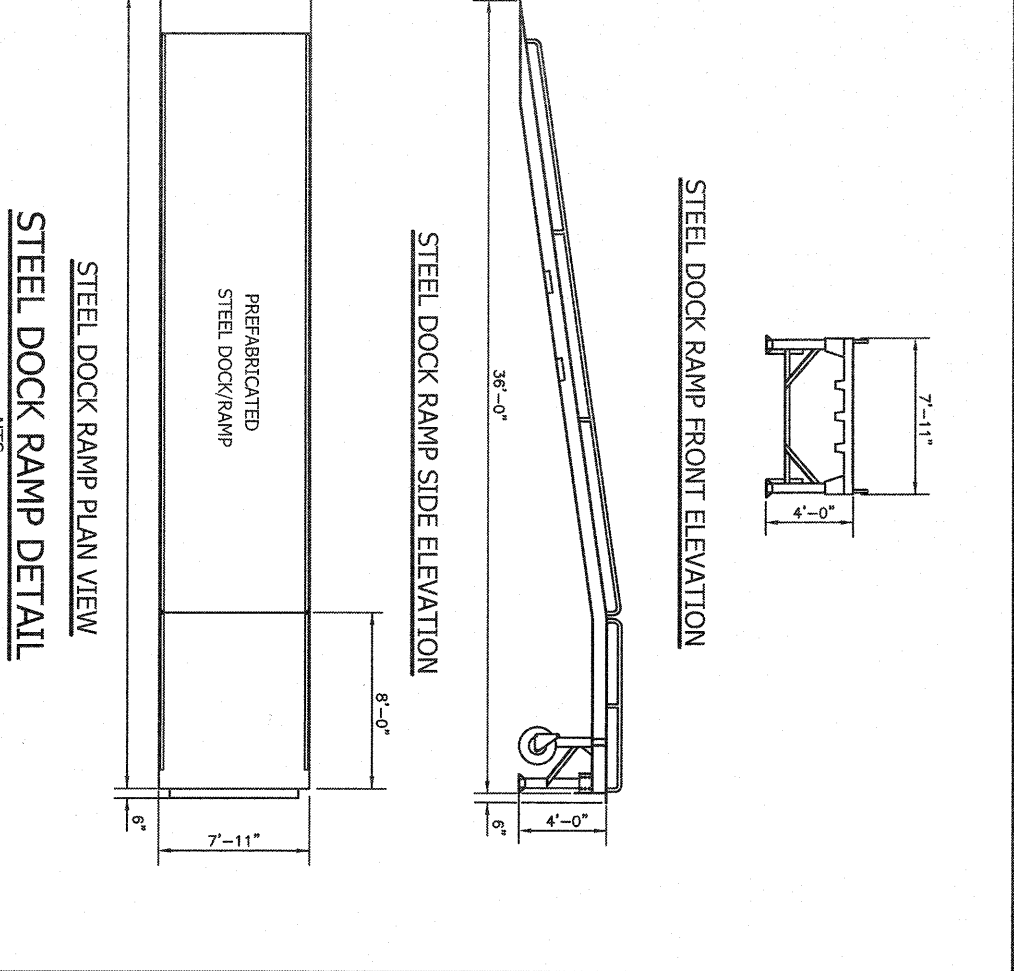
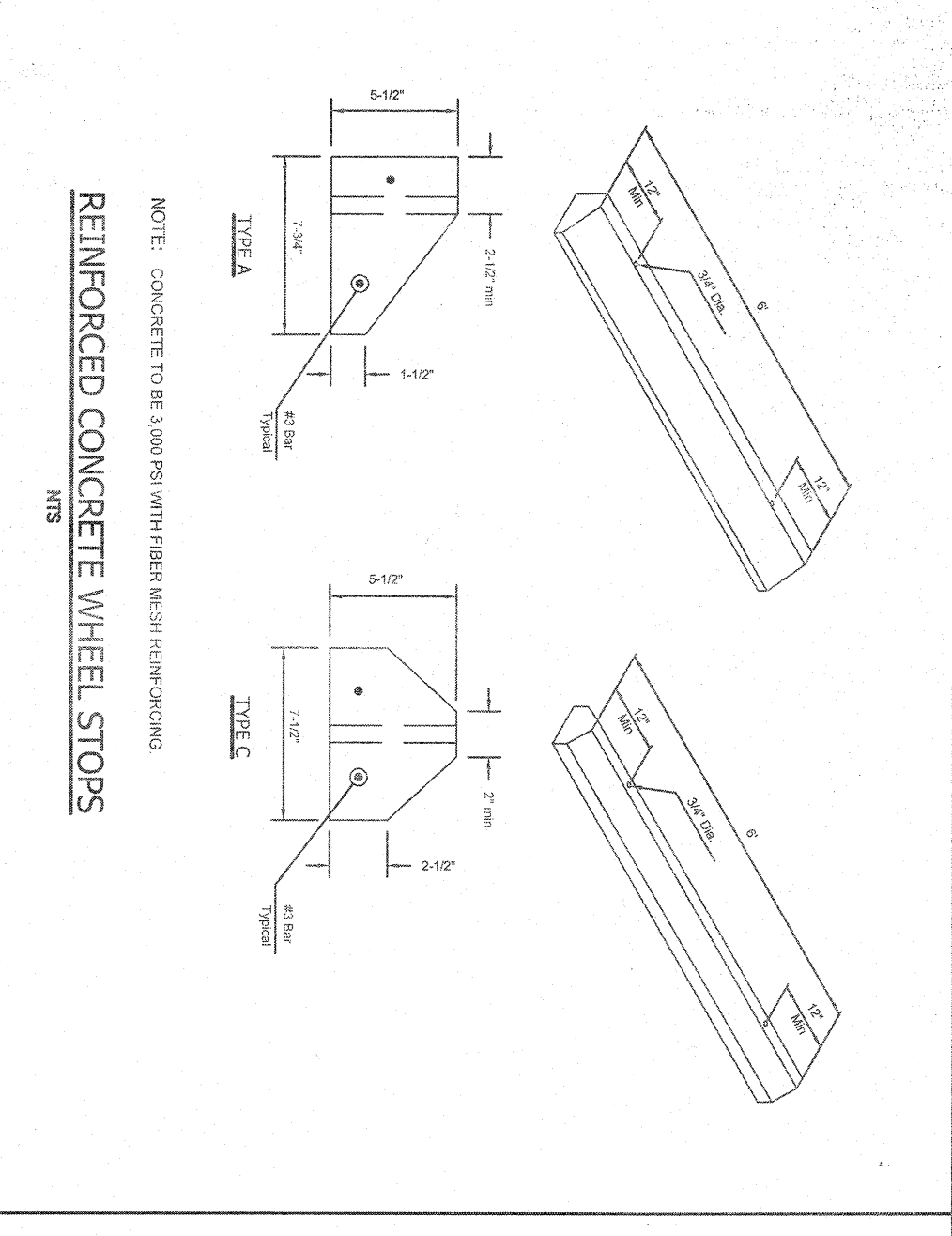
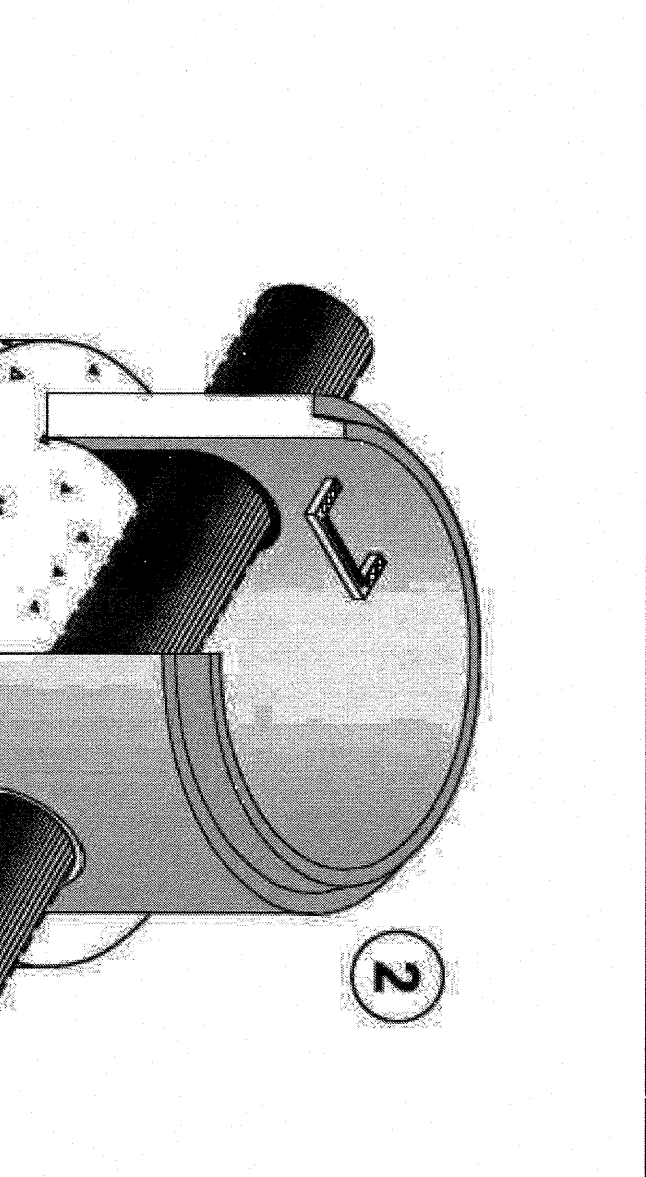
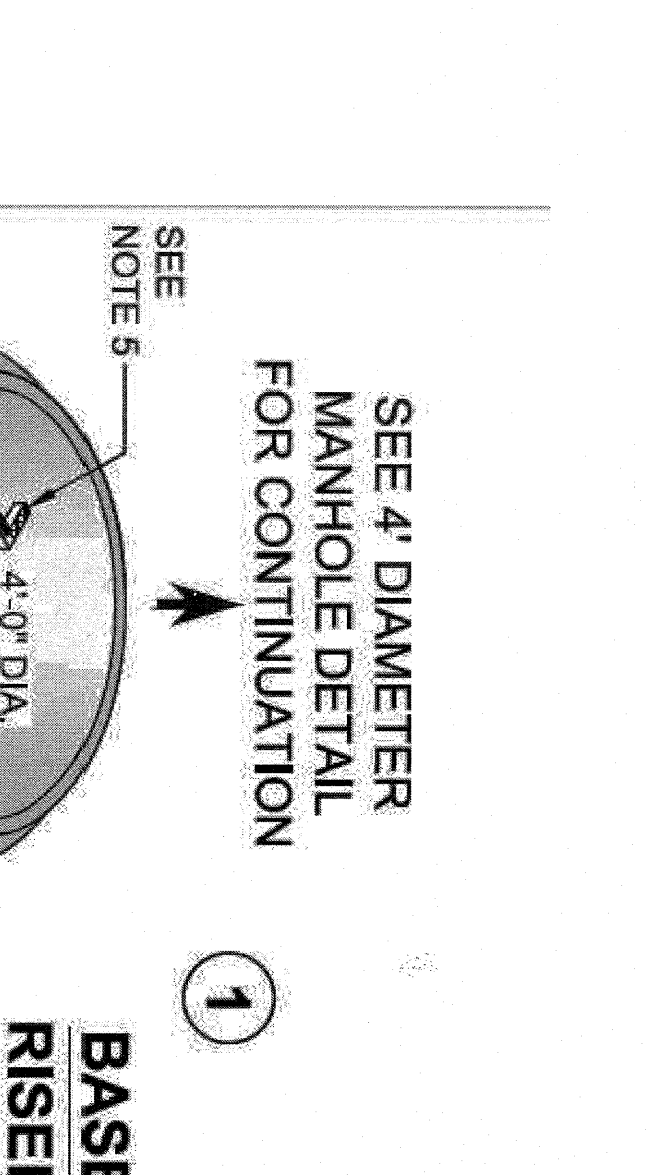
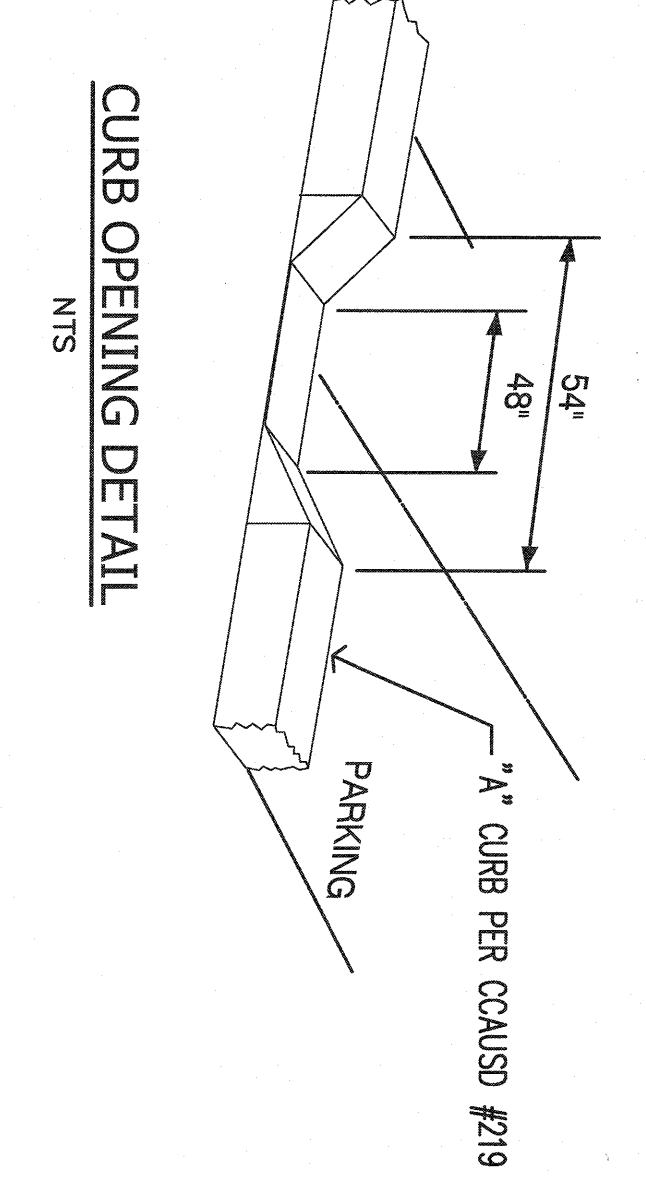
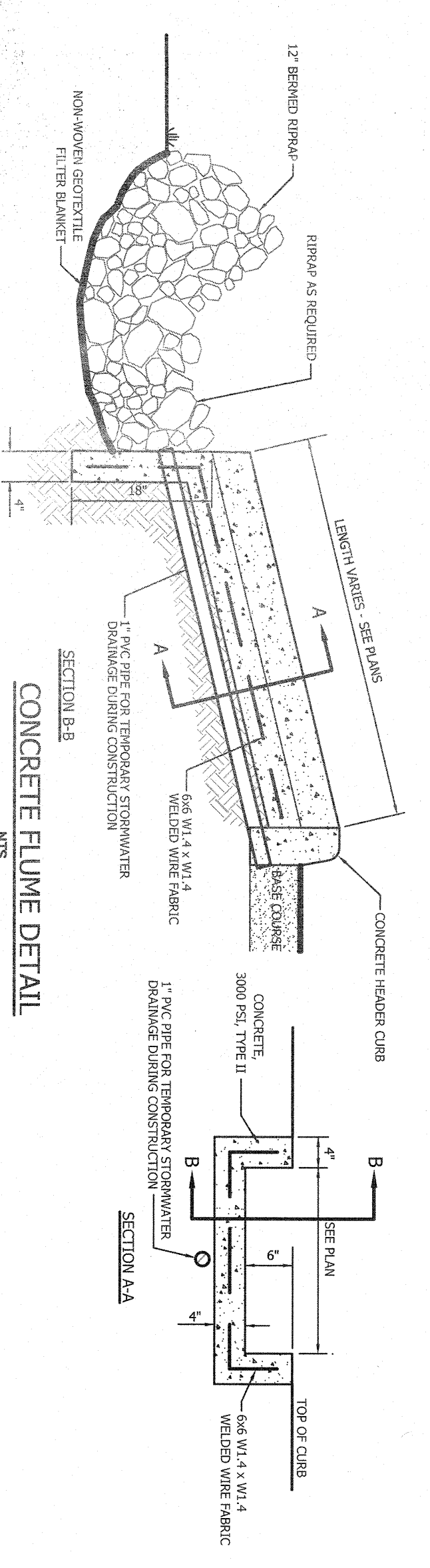
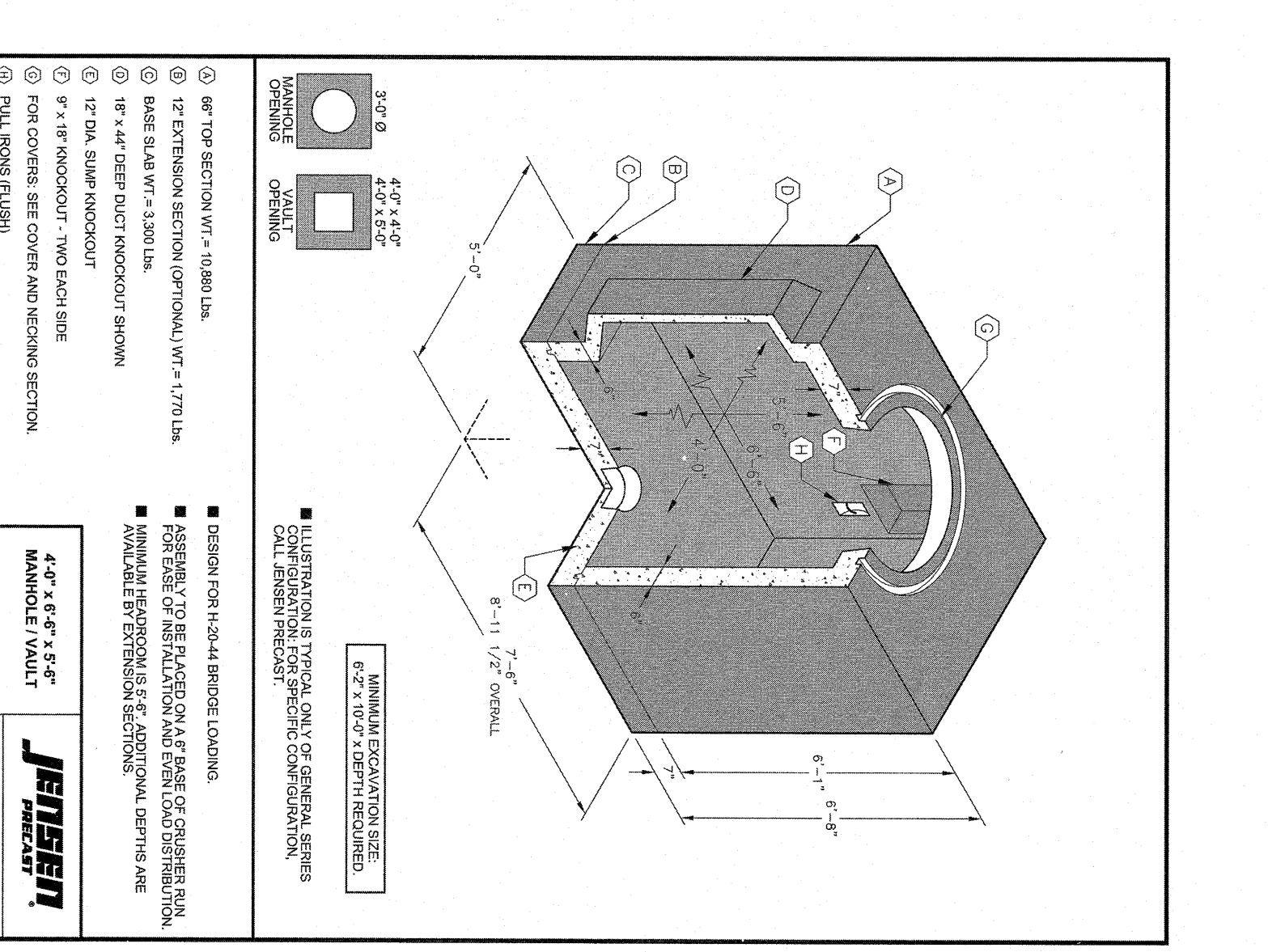
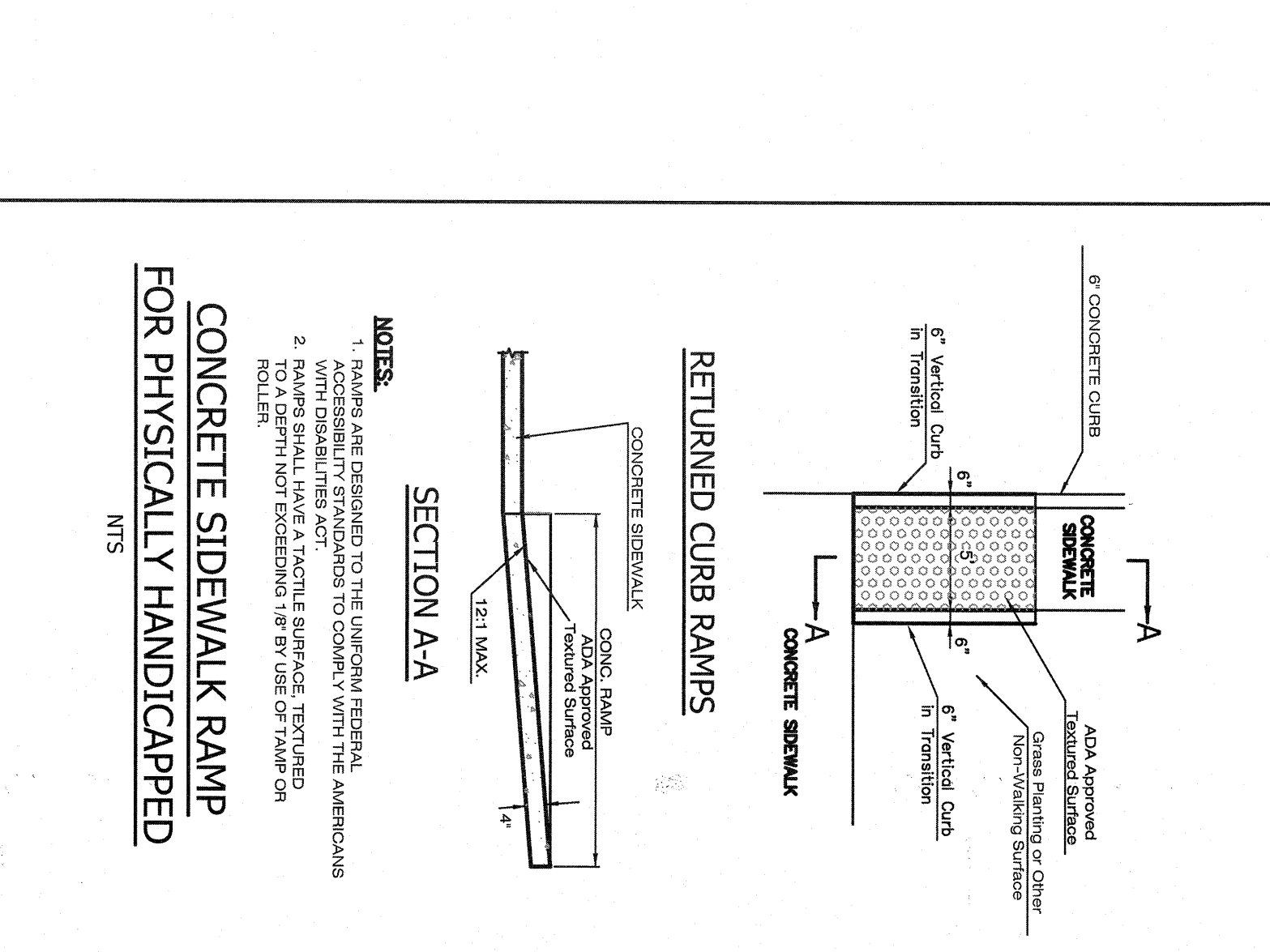
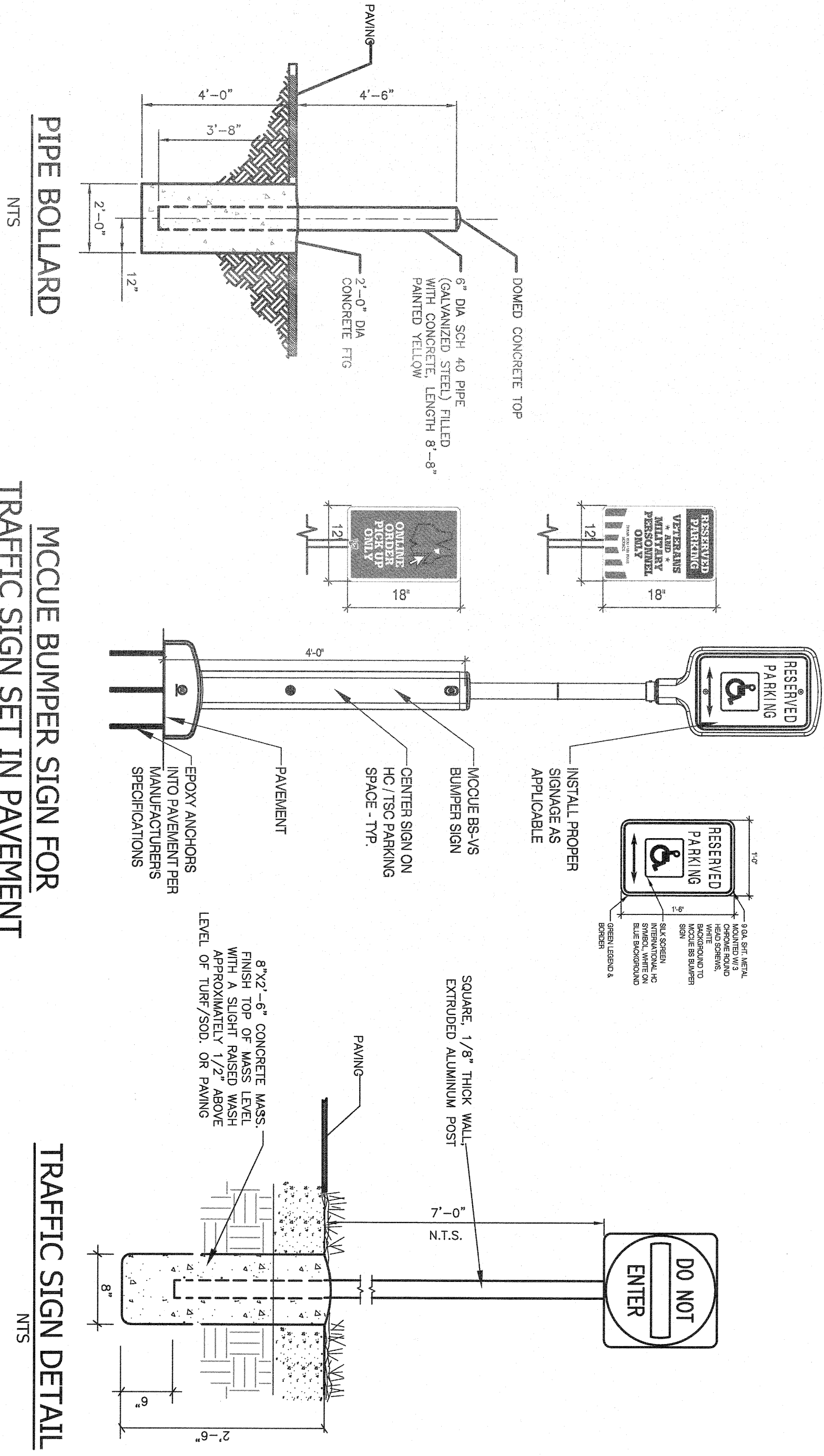
8. ALL WATER AND STORM DRAINS OR SANITARY SEWER CROSSINGS SHALL BE LOCATED OUTSIDE DRIVEWAYS, VALLEY AND CULVERTS.

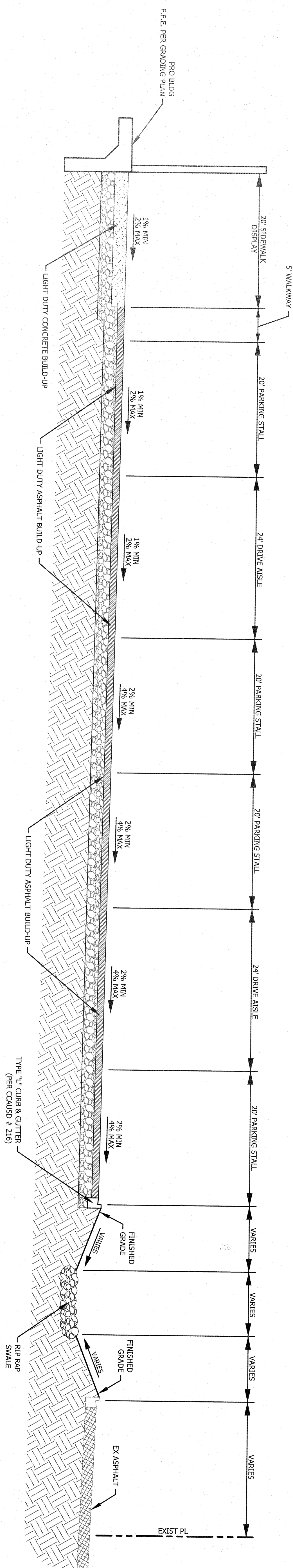
LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. 13072 RST APPROVED DATE: _____



Tractor Supply Company
6658 Sky Pointe Drive
Las Vegas, Nevada 89131

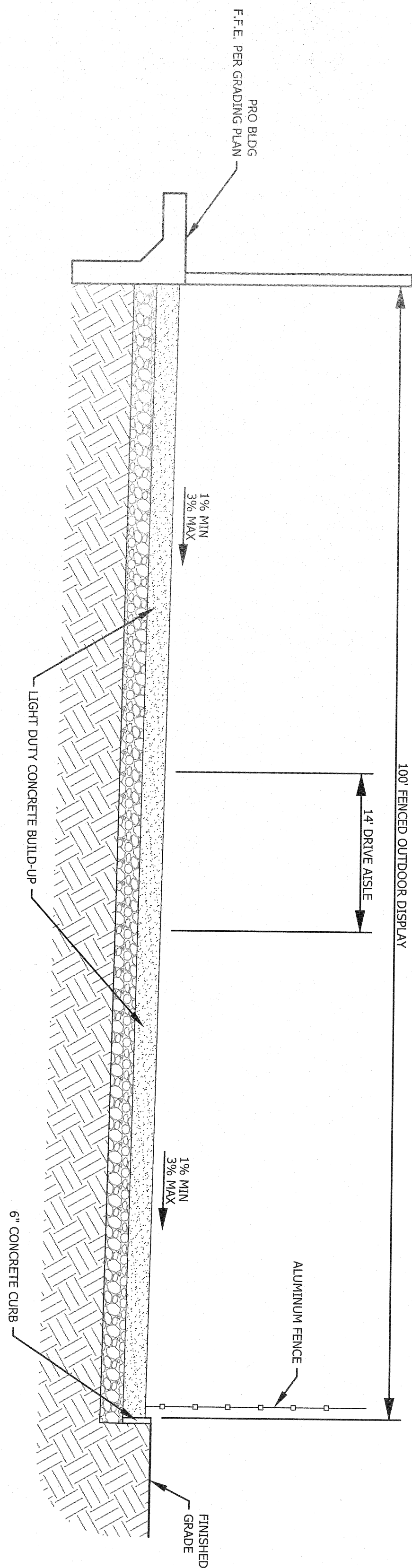
JADE
CONSULTING, LLC





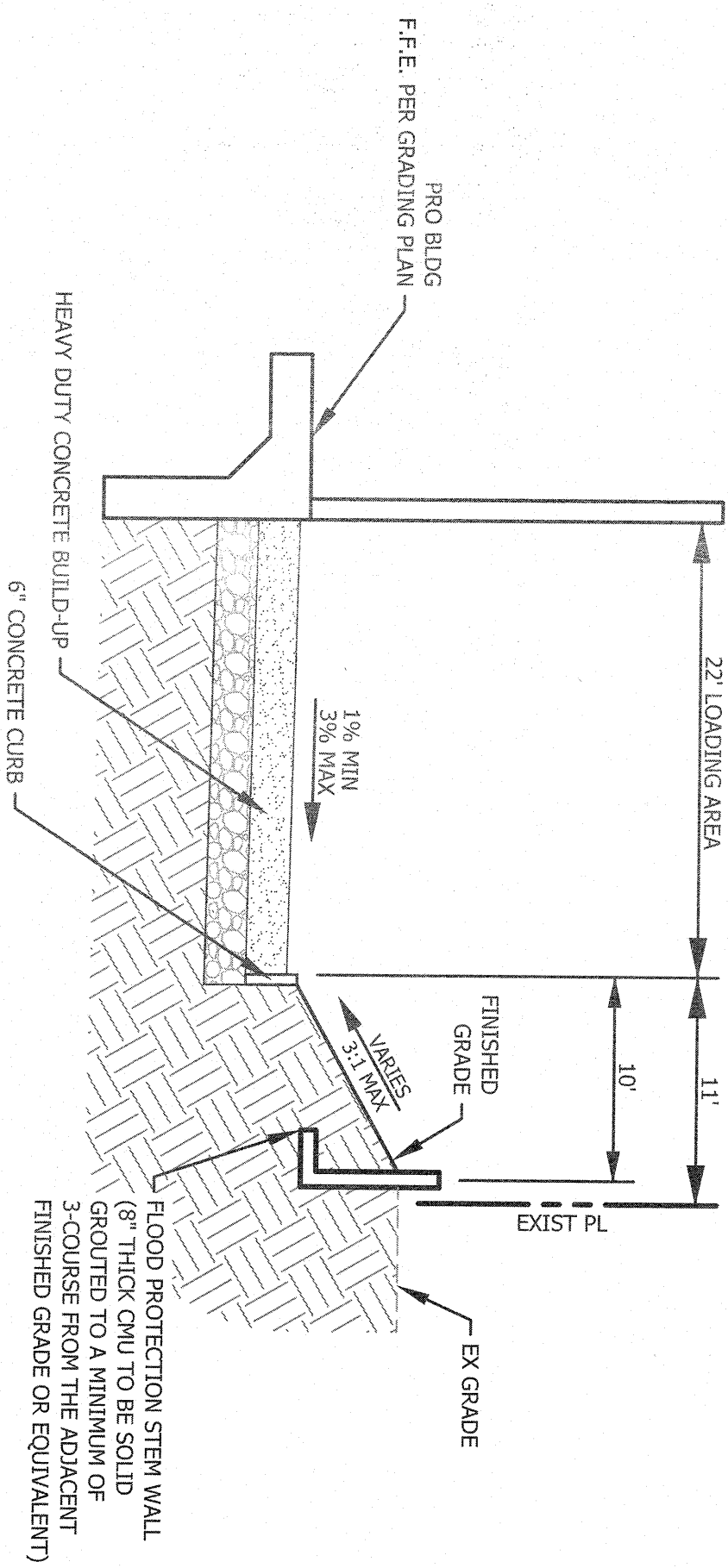
SECTION 'A'

NTS



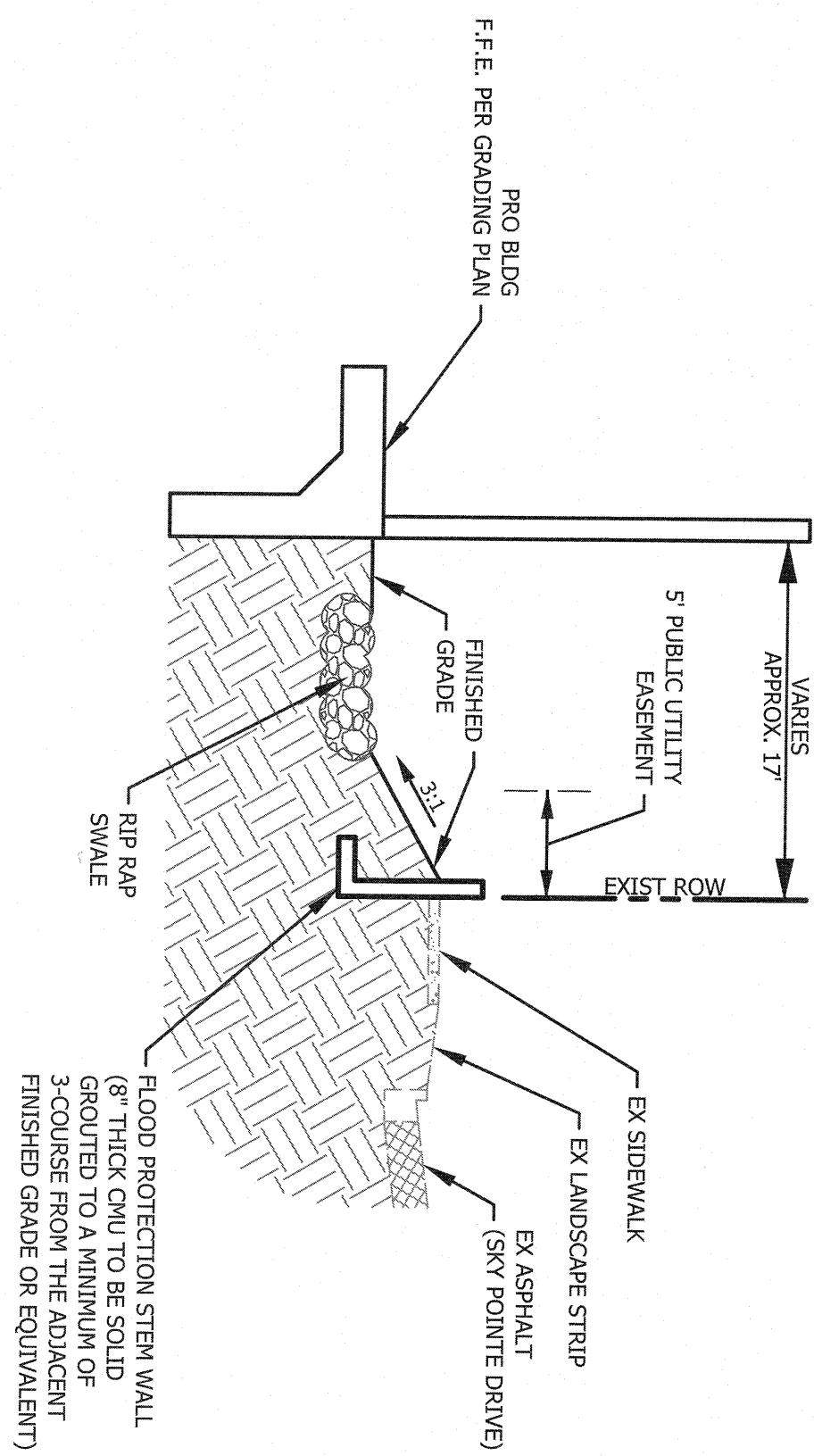
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SECTION 'C'

NTS



SECTION 'D'

NTS

SOUTHERN NEVADA BUILDING OFFICIALS REGIONAL STANDARDS	B-100--1	
	7-7-14	
MASONRY FENCES	Pg. 1 of 2	

NO.	REVISION	DATE	APPR.

Jinright & Associates Development Engineers
208 Greeno Road North Fairhope, Alabama 36532
P.O. Box 1929 Fairhope, Alabama 36533
• 251.928.3443(tel) 251.928.3665(fax)
jadengineers.com

JADE
CONSULTING, LLC

Tractor Supply Company
6658 Sky Pointe Drive
Las Vegas, Nevada 89131



TRACTOR SUPPLY COMPANY

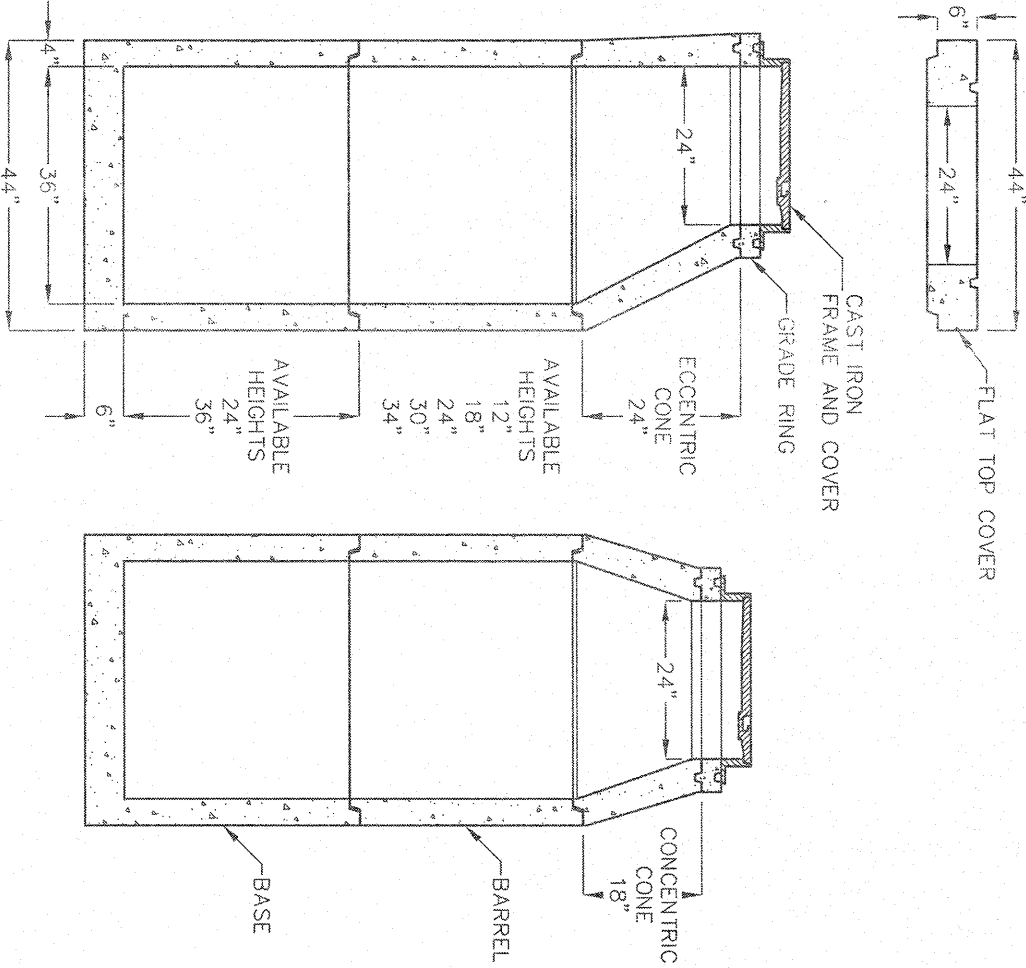
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DWG: CIVIL DETAILS (2)

DRAFTER: GMD

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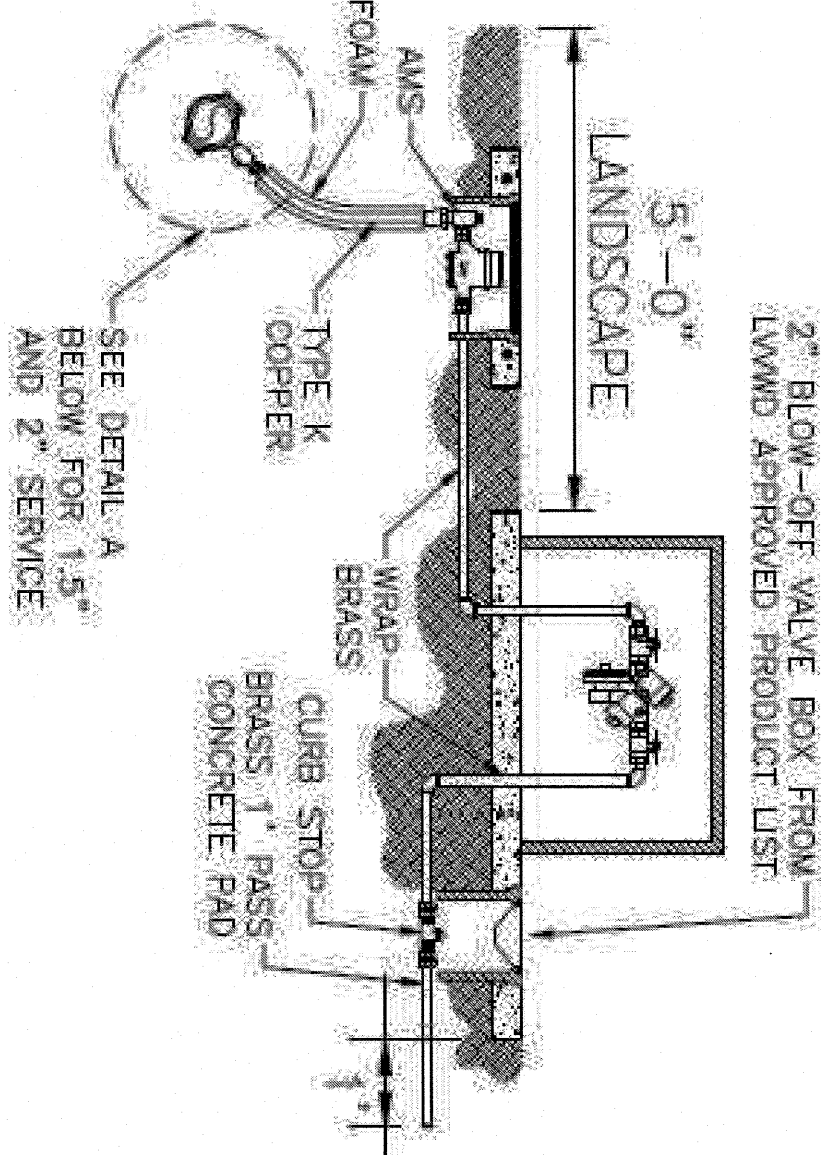
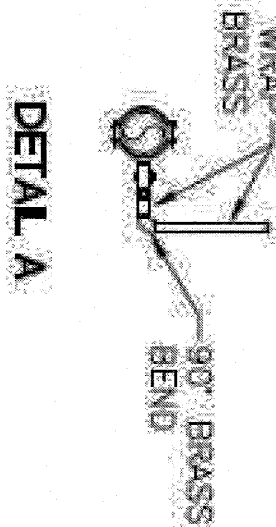
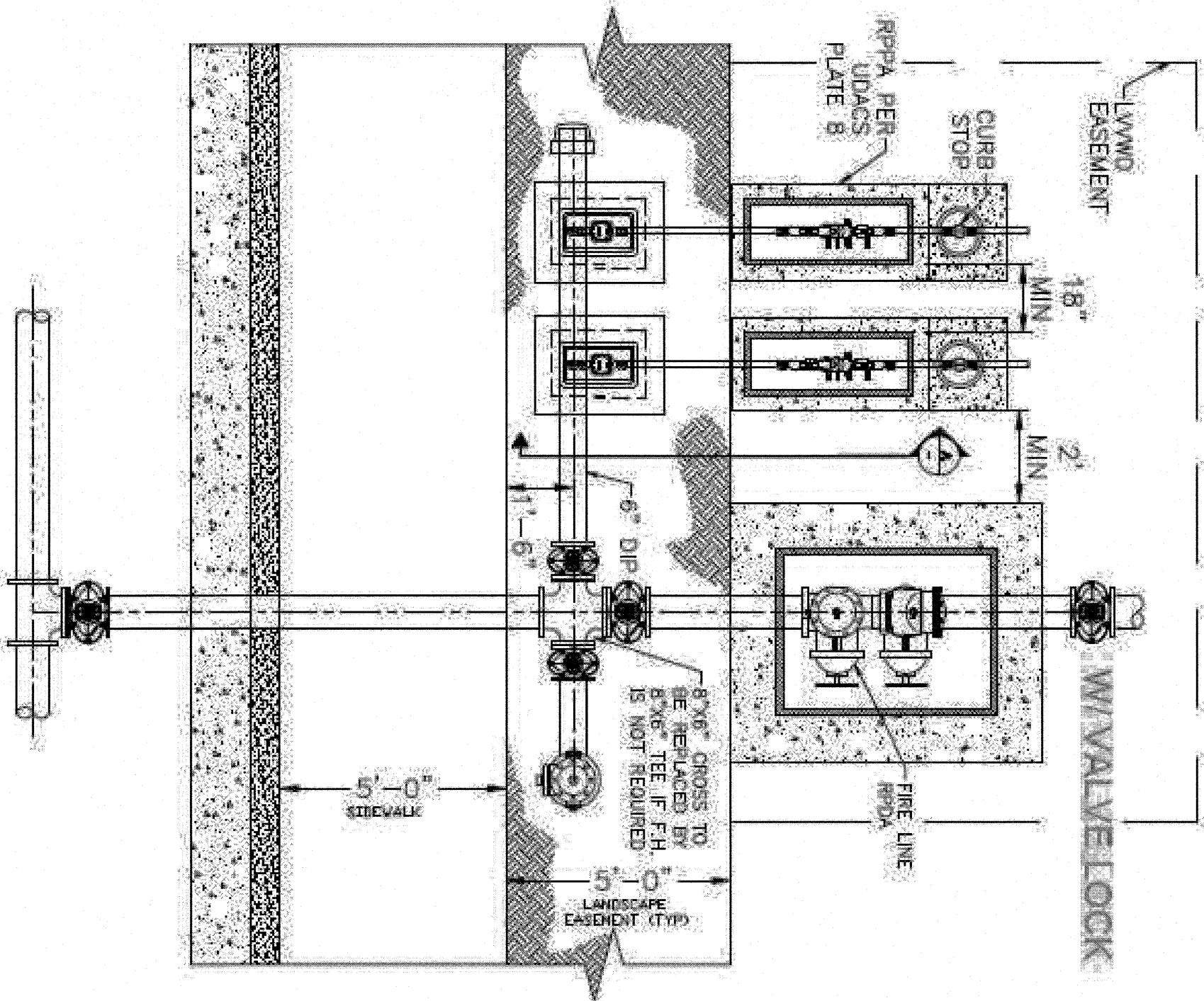
36" I.D. x 4" WALL
COMPONENTS



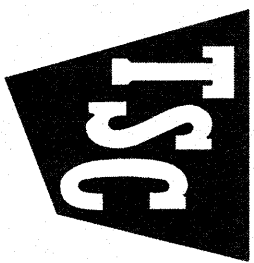
MANHOLE COMPONENTS CONFORM TO CURRENT SPECIFICATIONS, ASTM C-478 AND AASHTO M199. FLAT TOPS AND BASE SLABS ARE DESIGNED FOR AASHTO HS-20 WHEEL LOADING. FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.

Design of manhole to 36" inside diameter is based on 4" wall and 24" diameter. Actual wall thickness may vary slightly due to manufacturing tolerances. All dimensions are nominal and subject to change without notice. See product literature for complete design and product information.

JENSEN
PRECAST



SECTION
A



Tractor Supply Company
6658 Sky Pointe Drive
Las Vegas, Nevada 89131

CLV #: L190145, CIVIL 10/98/075
SCALE: NTS
DWG: CIVIL DETAILS (3)
DATE: JAN 2020
DRAFTER: GMD

C9

SHEET 10 OF 12

NO.	REVISION	DATE	APPR.



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CONSULTING, LLC

LAS VEGAS VALLEY CONSTRUCTION SITE BMP STANDARD NOTES:

1. THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAILY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHT OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE TITLE 24.40 AND LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY (NVR100000, SECTION III.A.5).
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENTS SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENTS SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY (NVR100000, SECTION III.A.12).
5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

CONSTRUCTION PHASE SEQUENCE

PHASE ONE

- INSTALL CONSTRUCTION ENTRANCE/EXIT
- CLEAR AREA REQUIRED FOR SILT FENCE PLACEMENT
- INSTALL SILT FENCE (SBA)

PHASE TWO

- WATTLES, INLET, AND OUTLET PROTECTION TO BE INSTALLED

PHASE THREE

- DEMOLITION AND REMOVAL OF DEMO DEBRIS
- CLEAR/GRUB REMAINING SITE AREAS

PHASE FOUR

- INSTALL STORM DRAINAGE MEASURES
- GRADE SITE TO ROUGH GRADES

PHASE FIVE

- CONSTRUCT UTILITIES (WATER, SEWER)
- BUILDING CONSTRUCTION BEGINS

PHASE SIX

- CONSTRUCT ROADS (PAVING, CURB AND GUTTER, SIDEWALKS)
- BUILDING CONSTRUCTION CONTINUES

PHASE SEVEN

- BUILDING CONSTRUCTION COMPLETED
- STABILIZE DISTURBED AREAS WITH SOLID SOD
- INSTALL PERMANENT LANDSCAPING

PHASE EIGHT

- REMOVE BMP MEASURES

PHASE NINE

- REMOVE SILT FENCE
- PROJECT COMPLETE, FINAL INSPECTION, FILE NOTICE OF TERMINATION

NOTES:

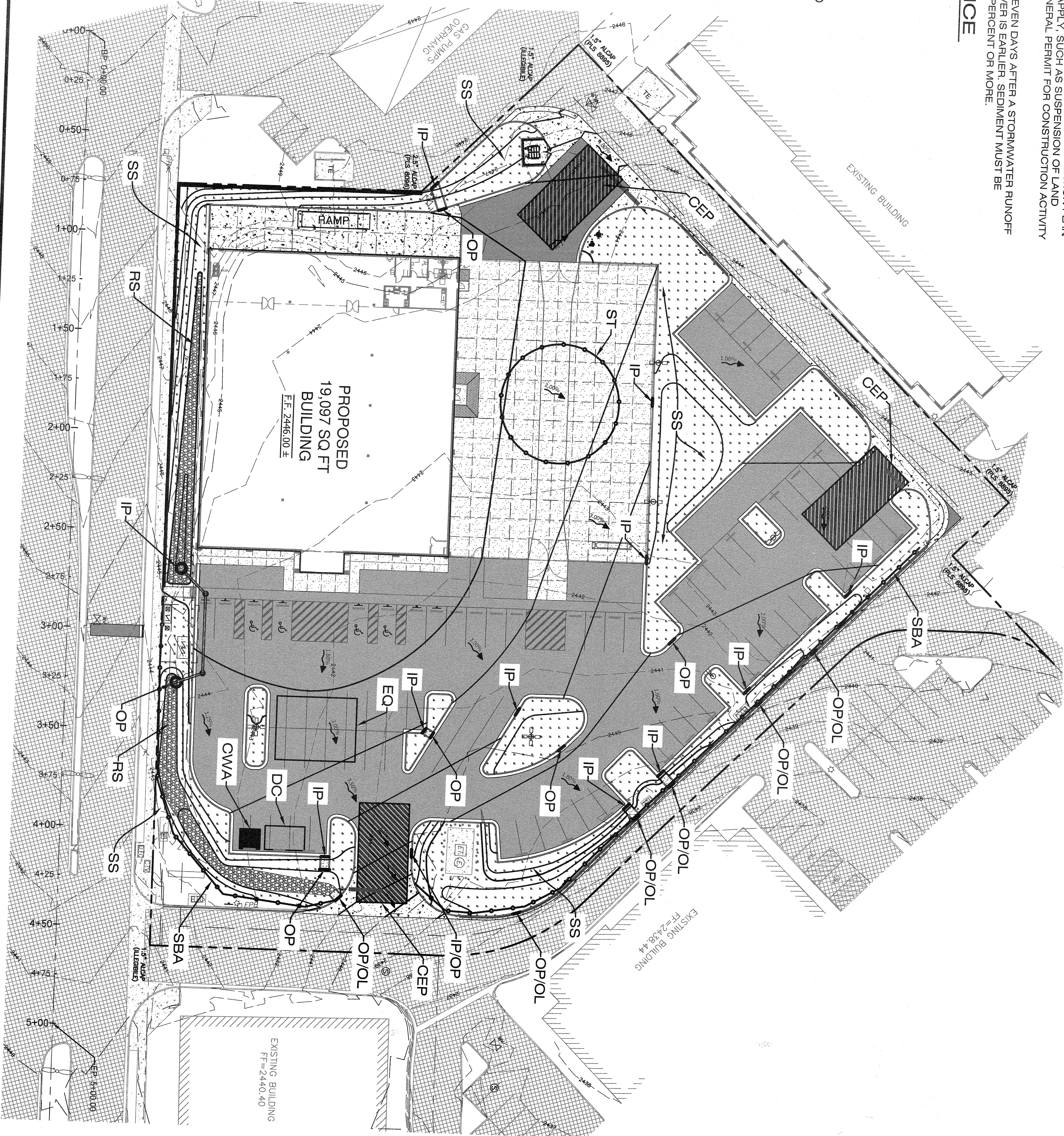
1. CONTRACTOR SHALL SEE LANDSCAPE PLANS FOR ALL ADDITIONAL GRASS PLANTING AND IRRIGATION REQUIREMENTS.
2. NO TEMPORARY OR PERMANENT STORAGE OF EXCAVATED MATERIALS ON SITE. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENT

NOTE:

PROPERTY OWNER IS RESPONSIBLE TO MAINTAIN THE BEST MANAGEMENT PRACTICES SUCH AS, BUT NOT LIMITED TO, THE REMOVAL OF ACCUMULATED SEDIMENT AND DEBRIS AND CARE OF THE VEGETATION.

NOTES

1. ALL EROSION CONTROL MEASURES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE "NEVADA DEPARTMENT OF ENVIRONMENTAL PROTECTION".
2. NO WORK SHALL COMMENCE, INCLUDING DEMOLITION, UNTIL ALL APPLICABLE EROSION CONTROL MEASURES HAVE BEEN INSTALLED, INSPECTED BY THE PROJECT ENGINEER, AND APPROVED.
3. EROSION CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO ANY CLEARING OR EARTHWORK OPERATIONS AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ALL DISTURBED AREAS.
4. ALL SLOPES SHALL BE TRACKED PERPENDICULAR TO SLOPE.
5. STORMWATER DETENTION POND OR SEDIMENT BASIN SHALL BE CONSTRUCTED, INSPECTED, AND APPROVED PRIOR TO WORK ON ANY OTHER TASK, UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTION AND CONTINUED MAINTENANCE OF EROSION CONTROL



LEGEND

	BENCHMARK
	FOUND MONUMENT AS NOTED
	SET 1-1/2' ALOP OR NAIL & BRASS TAG
	STAMPED PLS 10114
	RIGHT-OF-WAY
	CENTERLINE
	PROPERTY LINE (ADJACENT)
	EXIST. EASEMENT LINE
	EXIST. WATER LINE
	EXIST. SANITARY SEWER LINE
	PROPOSED SETBACK LINE
	PROPOSED EASEMENT LINE
	PROPOSED 24' CONCRETE CURB & GUTTER
	PROPOSED 6' CONCRETE CURB
	EXIST. STREET LIGHT
	EXIST. LIGHT POLE
	EXIST. ELECTRICAL PULL BOX
	EXIST. ELECTRICAL TRANSFORMER
	EXIST. ELECTRICAL VAULT
	EXIST. TELEPHONE VAULT
	EXIST. CABLE TV VAULT
	EXIST. CABLE TV BOX
	EXIST. WATER VALVE
	EXIST. FIRE HYDRANT
	EXIST. SANITARY SEWER MANHOLE
	EXIST. ASPHALT PAVING
	EXIST. CONCRETE
	PROPOSED LIGHT DUTY ASPHALT
	PROPOSED HEAVY DUTY ASPHALT
	PROPOSED LIGHT DUTY CONCRETE (BROOD FINISH)
	PROPOSED HEAVY DUTY CONCRETE (BROOD FINISH)
	EXIST. 1 FOOT CONTOUR
	EXIST. 5 FOOT CONTOUR
	EXIST. GRADE SPOT ELEVATION
	PROPOSED 1 FOOT CONTOUR
	PROPOSED 5 FOOT CONTOUR
	FINISHED GRADE ELEVATION
	DRAINAGE DIRECTION
	PROPOSED STONE DRAIN BED
	Construction Exit Pad
	Erosion Control Blankets
	Grass Swale
	Outlet Protection
	Riprap Lined Swale
	Inlet Protection
	Sediment Barrier(Silt Fence, Type A)
	Solid Sod
	Concrete Wash Area
	Debris Containment
	Outfall Location
	Equipment Staging
	Soils Stockpile

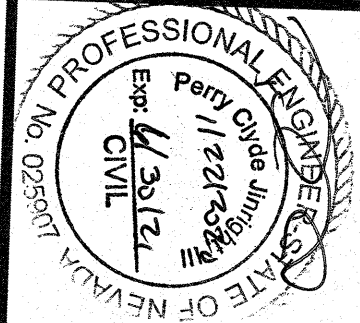
EROSION CONTROL LEGEND

	SBA
	SS
	CWA
	DC
	OL
	EQ
	ST

Tractor Supply Company
6658 Sky Pointe Drive
Las Vegas, Nevada 89131

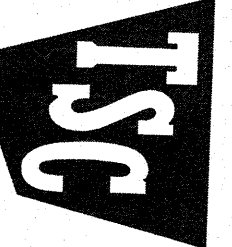
JADE
CONSULTING, LLC

Jinright & Associates Development Engineers
208 Greeno Road North Fairhope, Alabama 36532
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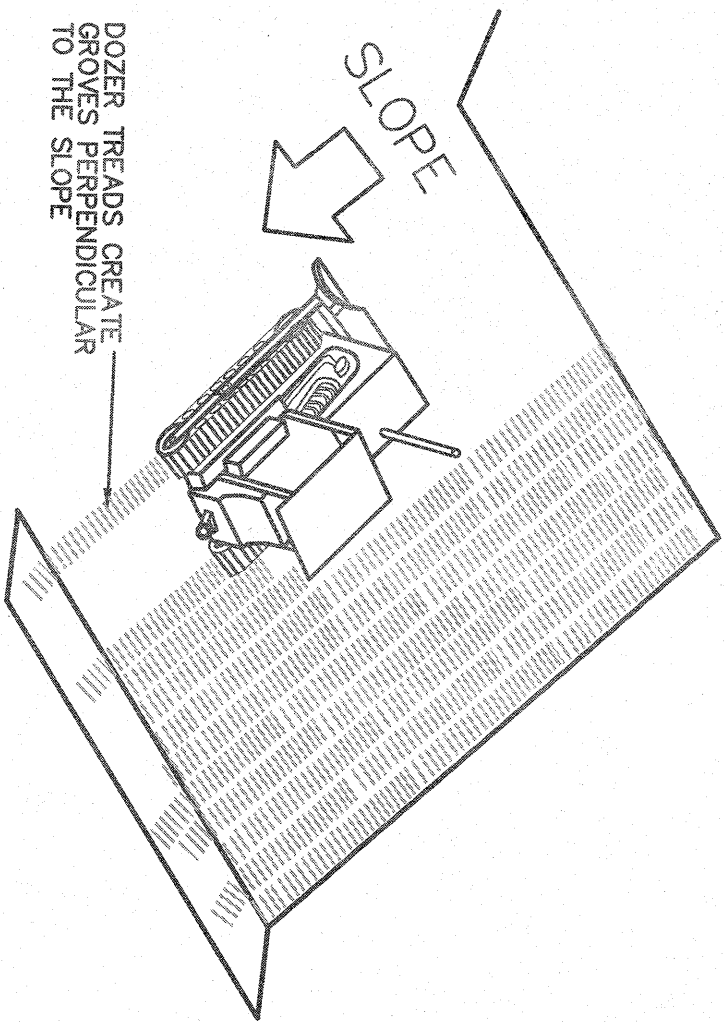


NO.	REVISION	DATE	APPR.

CLV #: 11903145 CLW 10708973
SCALE: 1" = 30'
DWG: EROSION CONTROL
DATE: JAN 2020
DRAFTER: CMD

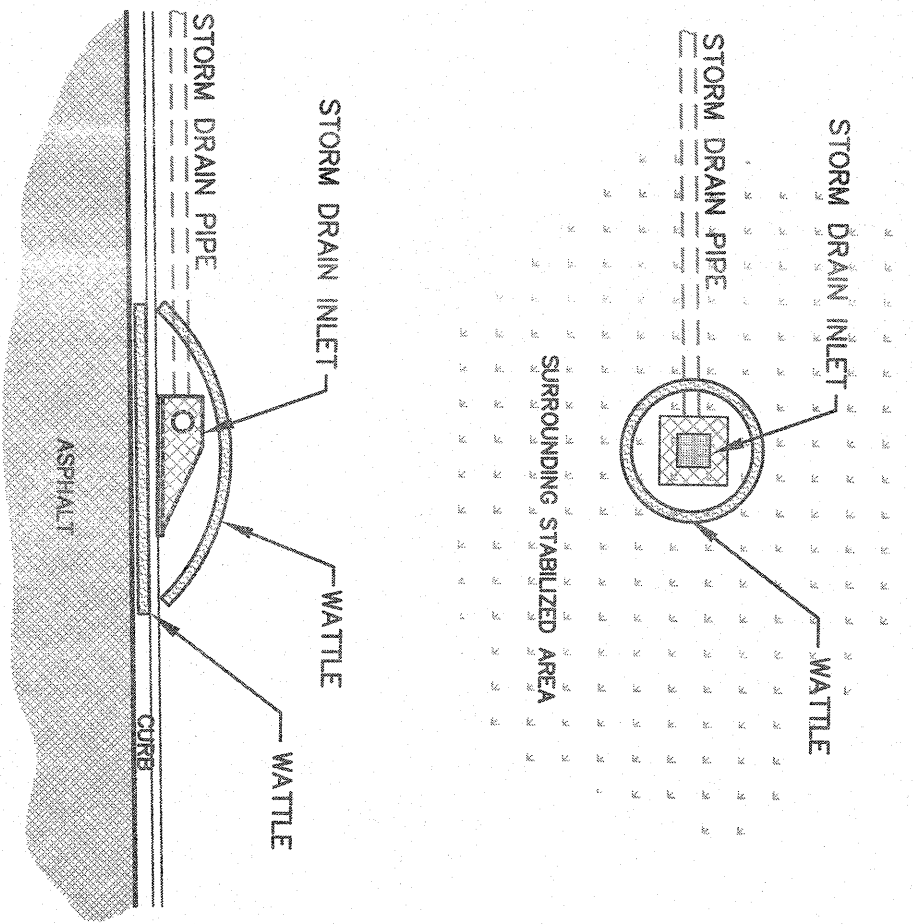


TRACTOR SUPPLY COMPANY



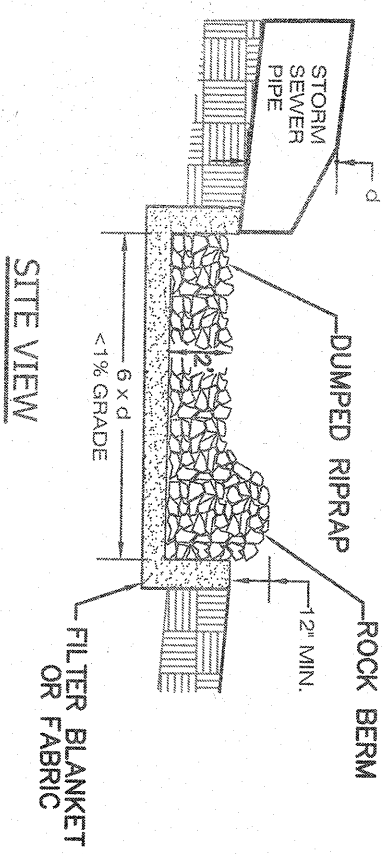
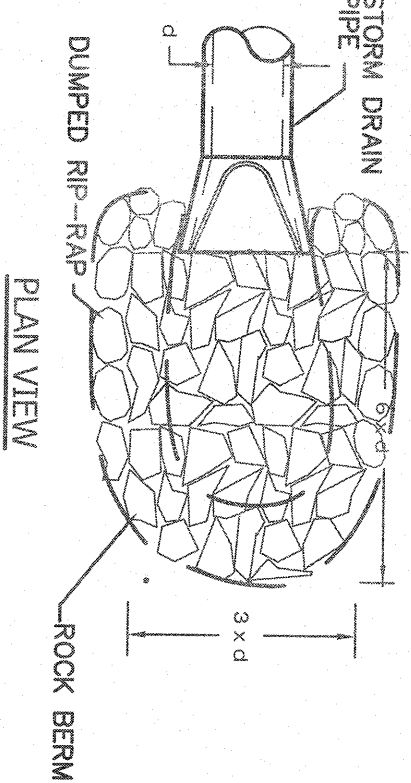
SURFACE ROUGHENING

NTS



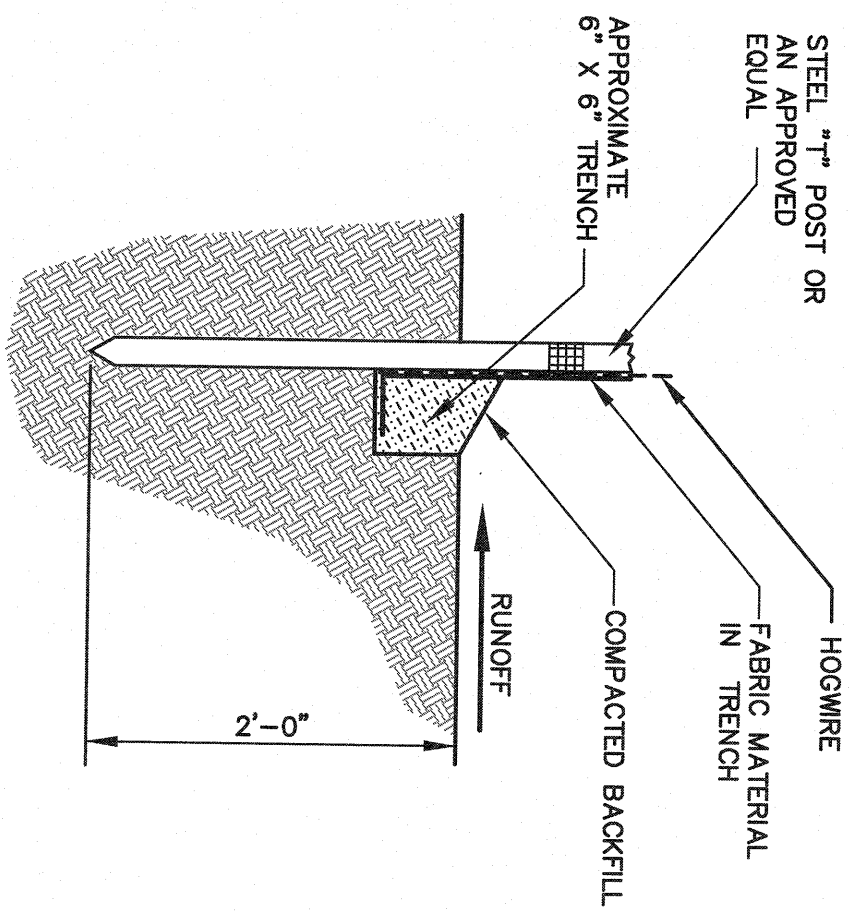
TYPICAL INLET EROSION CONTROL

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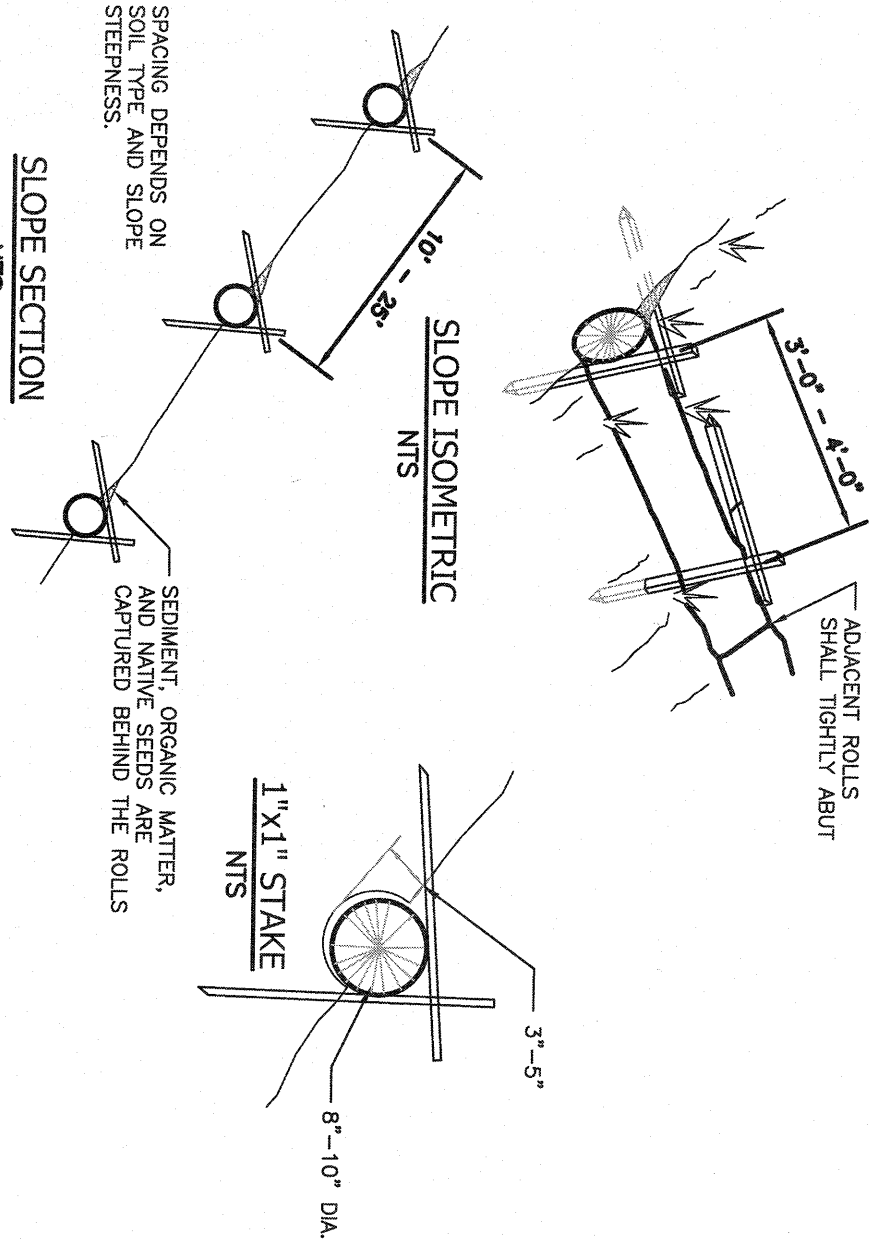


RIPRAP OUTLET PROTECTION

NTS



SECTION

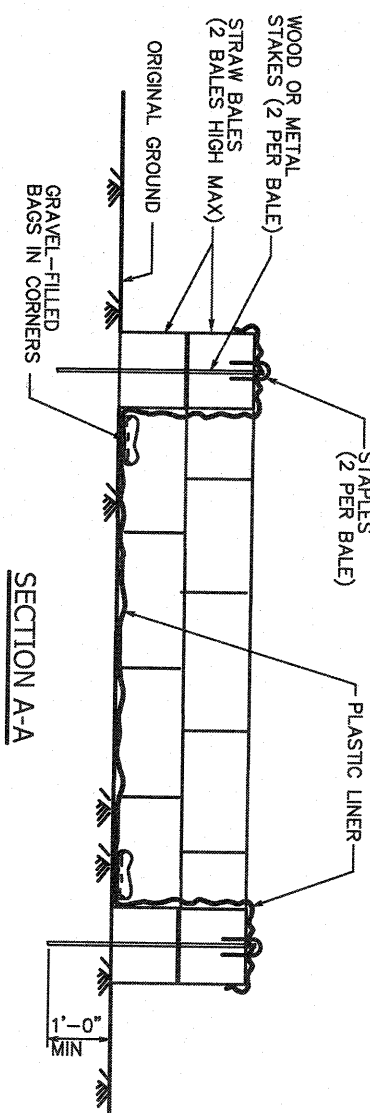


NTS

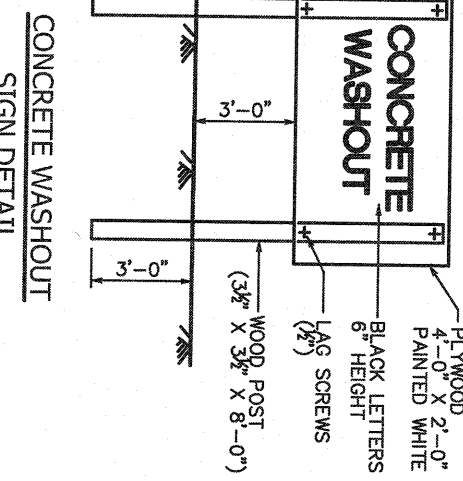
- NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 2. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURING OF THE ROLL IN A TRENCH, OR AROUND ROLL.

STRAW WATTLES

NTS

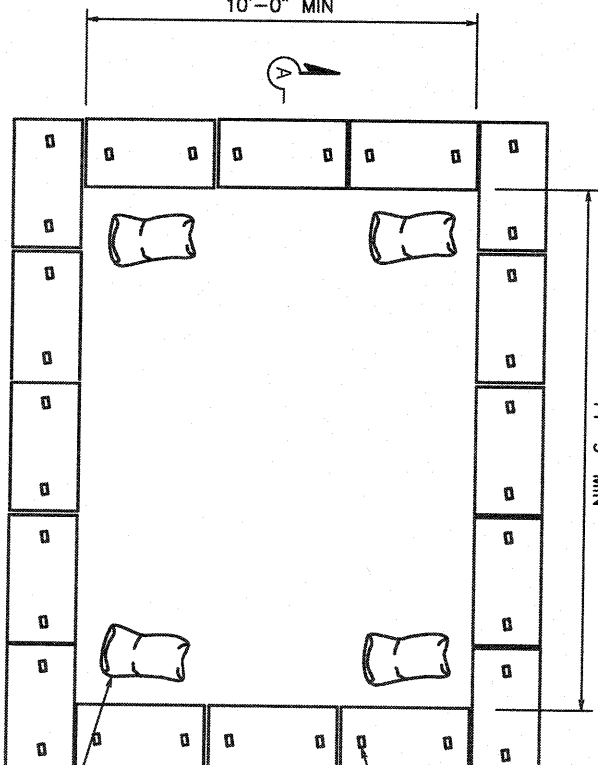


SECTION A-A



CONCRETE WASHOUT

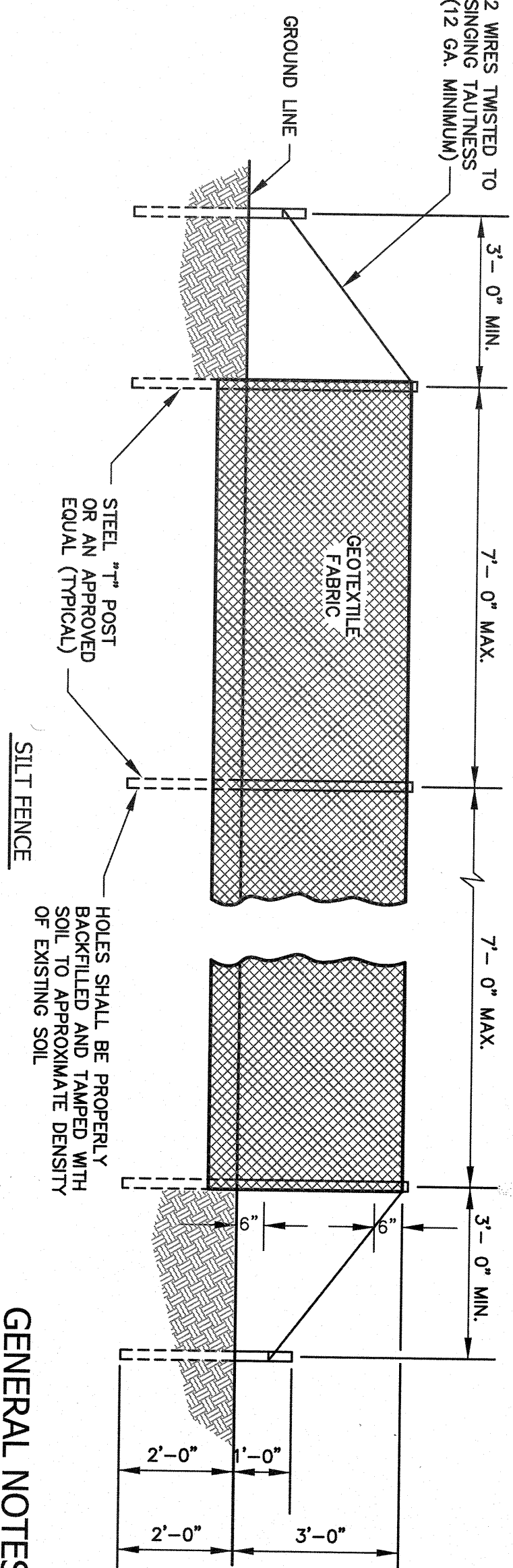
SECTION DETAIL



PLAN

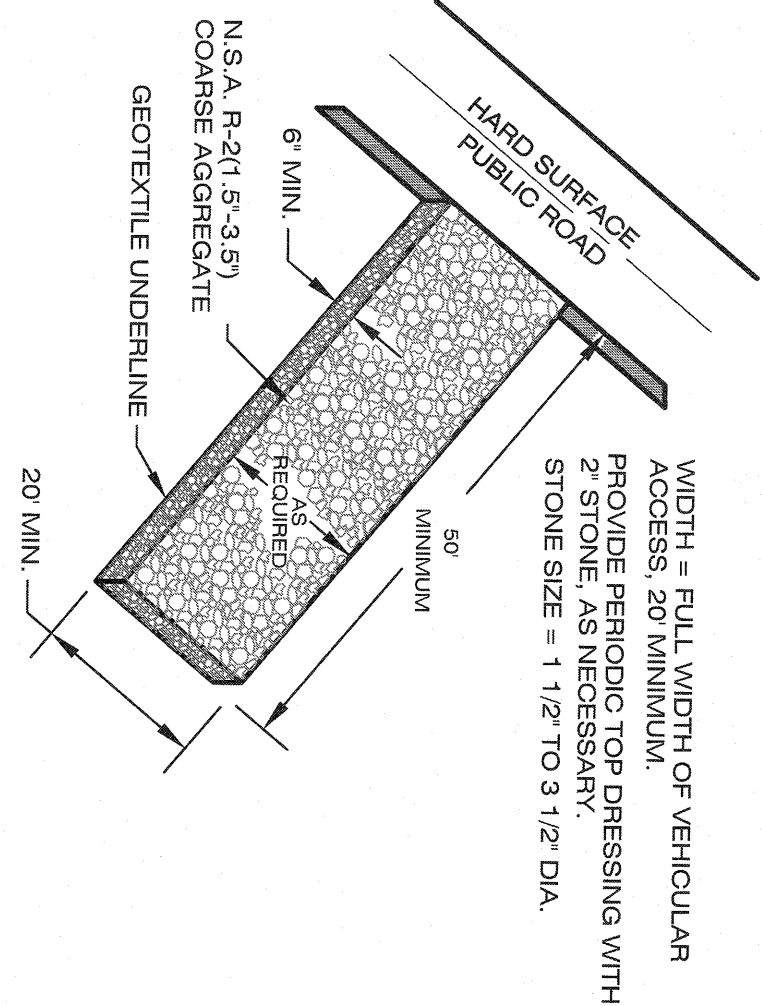
TEMPORARY CONCRETE WASHOUT FACILITY

(ON GRADE)



TYPICAL SILT FENCE INSTALLATION

NTS



STONE PAD CONSTRUCTION EXIT

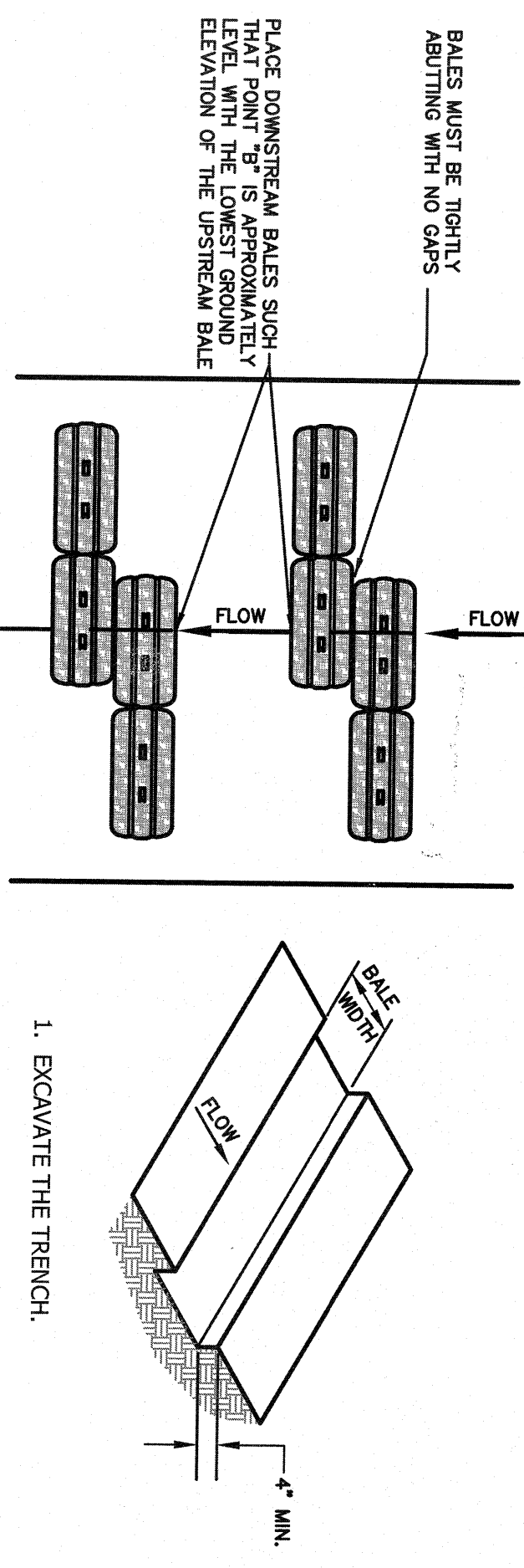
NTS

GENERAL NOTES

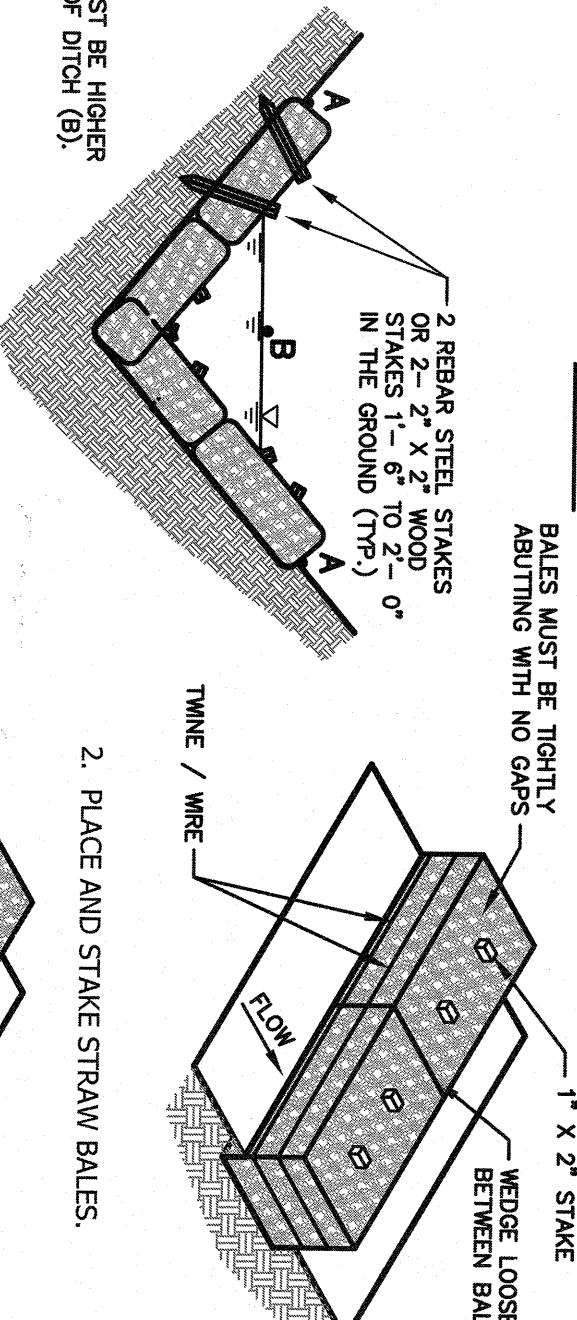
1. TYPE "A" SILT FENCE SHALL NOT BE USED IN AREAS OF CONCENTRATED FLOW.
2. SILT FENCES ARE TEMPORARY EROSION CONTROL ITEMS THAT SHALL BE RELOCATED OR REMOVED FROM AREAS SUCH AS NEWLY GRADED, FILL SLOPES AND ADJACENT TO STREAMS AND CHANNELS.
3. REPAIR OR REPLACE DAMAGED FABRIC AND SUPPORTS AS NEEDED AND REMOVE SEDIMENT WHEN IT HAS ACCUMULATED OVER 1/3 OF THE HEIGHT OF THE FENCE. SEDIMENT MUST BE REMOVED TO THE SOURCE OF THE SEDIMENT OR TRUCKED OFFSITE AND DEPOSITED IN AN APPROPRIATE DIRT STORAGE FACILITY.
4. WHEREVER POSSIBLE, SILT FENCES SHALL BE CONSTRUCTED ACROSS A FLAT AREA IN THE SHAPE OF A HORSESHOE. THIS DESIGN PROVIDES FOR RUNOFF AND FACILITATES SEDIMENTATION, ACTIVITY CURTAILED. SILT FENCES SHALL BE BUILT WITH RING FASTENERS USED TO SECURE GEOTEXTILES TO WOVEN WIRE SHALL BE 13 GA. (AMERICAN).
5. IF WOOD POSTS ARE USED, STAPLES FOR SECURING WOVEN WIRE TO POSTS SHALL BE NINE (9) GAUGE, GALVANIZED, 1 1/2" LONG, FIVE (5) PER POST @ APPROXIMATELY 1'-0" ON CENTER.
6. WOVEN WIRE TO BE 12 1/2 GAUGE (MINIMUM).

SPECIFICATIONS

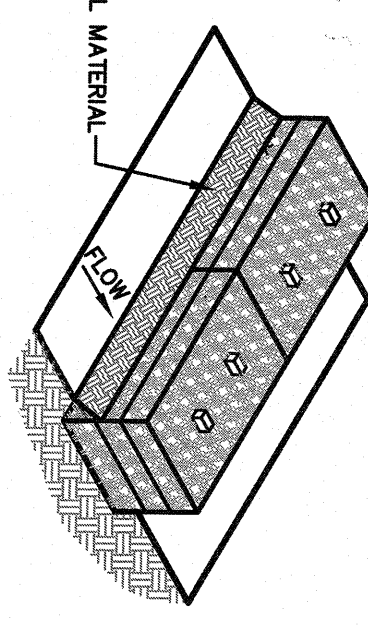
CURRENT NEVADA DEPARTMENT OF TRANSPORTATION



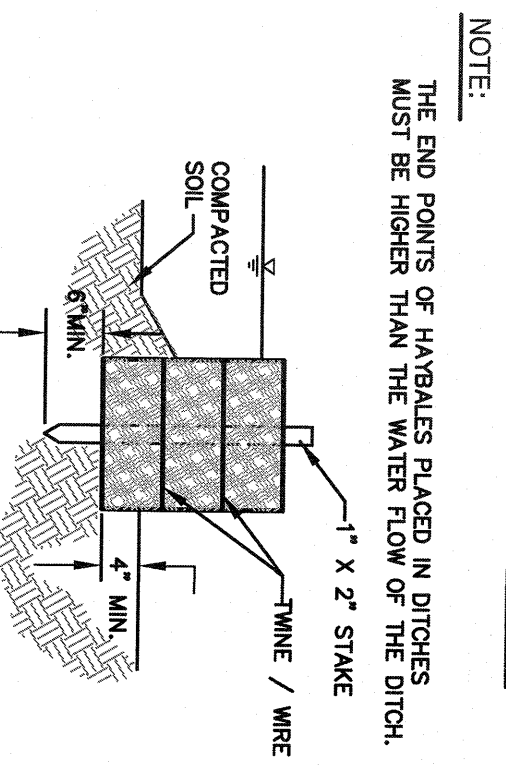
PLAN VIEW



SECTION



3. BACKFILL AND COMPACT EXCAVATED SOIL.



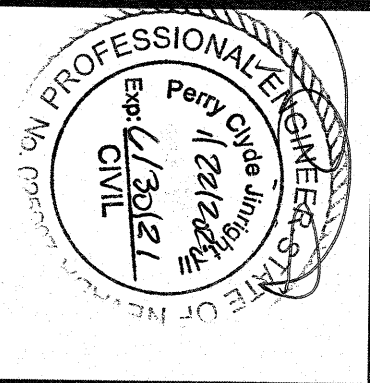
NOTE:

THE END POINTS OF HANGBARS PLACED IN DITCHES MUST BE HIGHER THAN FLOW LEVEL OF DITCH (B).

TYPICAL STRAW BALE INSTALLATION

NTS

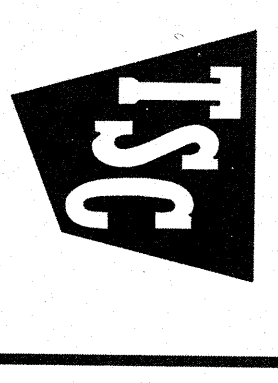
NO.	REVISION	DATE	APPR.



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CSH # 1390245, CIVIL 10/26/20
SCALE: NTS
DWG: EROSION DETAILS
DATE: JAN 2020
DRAFTER: CMD
C11
SHEET 12 OF 12