CITY OF ALBUQUERQUE

Hydrology Section Planning Department
David S. Campbell, Director

Timothy M. Keller, Mayor

May 7, 2018

David Thompson PE
Thompson Engineering Consultants Inc.
PO Box 65760
Albuquerque, NM 87193

RE: **Signal Village Subdivision**
Grading Plan
Engineer's Stamp Date 4/20/2018
Hydrology File: C20D078

Dear Mr. Thompson:
Based on the information provided in the submittal received on 10/04/2017 the above-referenced Grading Plan cannot be approved for Preliminary Plat until the following are addressed:

1. Show the existing and proposed property lines and right of way dedications.
2. Provide first flush calculations, and show details of the proposed facilities.
3. This site does not currently drain to Signal Avenue and the drainage from this development was not anticipated in the downstream drainage system, so developed runoff will not be allowed to Signal Ave.
4. Typical sections are required at all retaining walls at the point of maximum retainage showing existing ground, proposed grades, lot lines, and dimensions. Wall footers must not encroach into public right of way or adjacent properties without a written agreement from the adjacent land owner.
5. Frontage improvements will be required on Ventura St. and Signal Ave. that must be shown on the G&D plan. Typical sections must be shown on the G&D Plan for all roads both onsite and offsite. The sections and the plans should show both the full planned width and the portion to be constructed with this project, along with any temporary transitions at the ends.
6. Ventura St is classified as a major collector on the 2040 long range roadway plan. In accordance with ordinance 14-5-2-8 "Crossings of major arroyos by arterial and collector streets shall be at public expense" so Ventura Street may remain a "dip section provided depth times velocity (with velocity calculated as the average velocity measured in feet per second and depth measured in feet at the upstream edge of the roadway including sidewalk) does not exceed 6.5 for that portion of the 10-year storm runoff crossing on the street". The fill in the subdivision must not block the 100 year flow through the dip section. The depth of the scour protection downstream of the future bridge must accommodate the future increased velocities, future increased depths, and lowered invert elevation of the channel downstream of the future bridge.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Orig: Drainage File

7. This entire site is in a FEMA Special Flood Hazard Area, SFHA. The improvements needed to remove the SFHA must be constructed, and then a Letter of Map Revision LOMR must be obtained from FEMA removing the floodplain from the development before any building permits will be allowed.
8. Scour protection must be provided to protect the development from potential lateral migration of the arroyo. The potential lateral migration of the arroyo must be calculated. Development is usually encouraged to stay outside of the Prudent Limit. Any development within the Prudent Limit must be protected from potential lateral migration of the arroyo to the depth of scour calculated in accordance with the "Sediment and Erosion Design Guide". Parallel flow may be assumed over most of the length of the scour wall, but perpendicular flow must be anticipated at the upstream end.
9. Detailed hydraulic calculations are required to demonstrate that the fill being placed in the floodplain will not increase the base flood elevation. HEC-RAS models are required in accordance with FEMA MT-2 instructions and should start with a model supplied by FEMA. Information request forms may be obtained on the FEMA web page. . The analysis must include HEC-RAS models of the "Duplicate Effective", "Corrected Effective", and "Revised" flood plains, beginning with the model acquired from FEMA thru a data request.
10. A topo work map and annotated FIRM are required with the analysis. A plan and profile of the La Cueva arroyo is also required showing stationing along the FEMA thalwag and station information for the proposed floodplain improvements. The profile and a typical section should show the scour depth measured from the existing arroyo invert elevation, and 2' of freeboard above the 100-year base flood elevations.
11. Sediment continuity analysis is required in the immediate vicinity of this project to determine vertical stability and insure that the future bridge won't be clogged by sediment depositions.
12. Written concurrence with the grading and drainage plan is required from the USACE indicating compliance with section 404 of the clean water act prior to approval of the preliminary plat. The limits of any Waters of the US must be shown on the Grading and Drainage Plan and conditions of any Section 404 permits must be stated on the plan.
13. All calculations must be contained in a bound report with an engineer's stamp and signature.
14. A separate floodplain permit must be obtained from Rude Rael at rrael@cabq.gov prior to any work in the floodplain.
15. An approved ESC Plan is required for this project, and an ESC Permit is required prior to any land disturbance on this site due to the close proximity to the floodplain.

If you have any questions, I can be contacted at 924-3986 or jhughes@cabq.gov.

Sincerely,

James D. Hughes P.E.
Principal Engineer, Planning Dept.
Development Review Services

DRAINAGE INFORMATION SHEET
(REV. 1/28/2003rd)

PROJECT TITLE: SIGNAL VILLAGE SUBDIVISION ZONE MAP/DRG. FILE #: C-20 D078
DRB #: _____ EPC #: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: LOTS 17 & 18, BLOCK 4, TRACT 3, UNIT 3, NORTH ALBUQUERQUE ACRES
CITY ADDRESS: _____

ENGINEERING FIRM: Thompson Engineering Consultants, Inc.
ADDRESS: P.O. Box 65760
CITY, STATE: Albuquerque, NM
CONTACT: David Thompson
PHONE: 271-2199
ZIP CODE: 87193

OWNER: Llave Enterprises, Inc.
ADDRESS: 8830 Keeran Lane NE
CITY, STATE: Albuquerque, NM
CONTACT: Bob Keeran
PHONE: 249-1502
ZIP CODE: 87122

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____

SURVEYOR: Aldrich Land Surveying
ADDRESS: P.O. Box 30701
CITY, STATE: Albuquerque, NM
CONTACT: Tim Aldrich
PHONE: 884-1990
ZIP CODE: 87190

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____
CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:
_____ DRAINAGE REPORT
X DRAINAGE PLAN 1st SUBMITTAL, REQUIRES TCL or equal
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL GRADING & DRAINAGE PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION (HYDROLOGY)
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ ENGINEER'S CERTIFICATION (TCL)
_____ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
_____ OTHER

RECEIVED
APR 20 2018
LAND DEVELOPMENT SECTION

$190.00

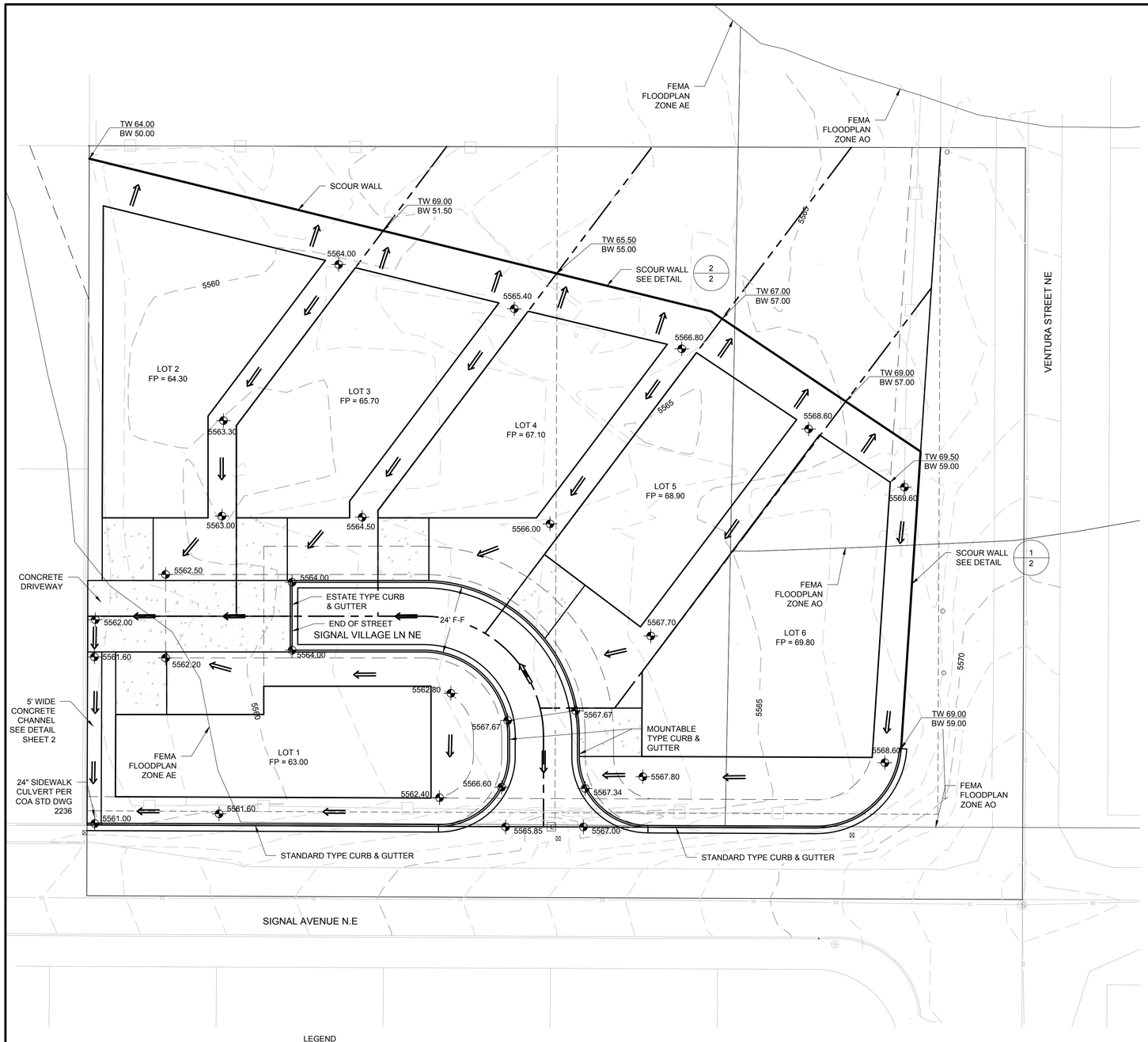
CHECK TYPE OF APPROVAL SOUGHT:
_____ SIA/FINANCIAL GUARANTEE RELEASE
X PRELIMINARY PLAT APPROVAL
_____ S. DEV. PLAN FOR SUB'D. APPROVAL
_____ S. DEV PLAN FOR BLDG. PERMIT APPROVAL
_____ SECTOR PLAN APPROVAL
_____ FINAL PLAT APPROVAL
_____ FOUNDATION PERMIT APPROVAL
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM.)
_____ CERTIFICATE OF OCCUPANCY (TEMP.)
X GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
_____ YES
X NO
_____ COPY PROVIDED

DATE SUBMITTED: April 20, 2018 BY: _____

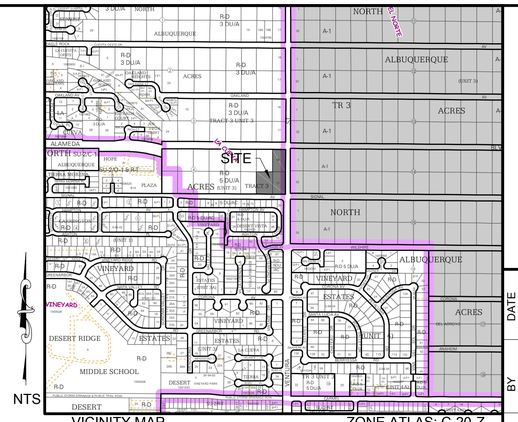
Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five acres
2. **Drainage Plans:** Required for building permits, grading permits, paving permits, and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or



LEGEND

- CONCRETE DRIVEWAY
- FLOW ARROW
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- CURB & GUTTER
- FEMA FLOODPLAIN BOUNDARY



NTS

VICINITY MAP ZONE ATLAS: C-20-Z

DRAINAGE PLAN:

LEGAL DESCRIPTION: LOTS 17 & 18, BLOCK 4, TRACT 3, UNIT 3, NAA

SITE AREA: 1.6135 ACRES (TOTAL SITE), 1.2020 ACRES (DEVELOPED AREA)

FLOOD HAZARD STATEMENT: F.E.M.A. FLOODWAY BOUNDARY AND FLOODWAY MAP DATED AUGUST 16, 2012 (PANEL NO. 35001C0141H) INDICATES A FLOOD HAZARD ZONE AE WHICH IS AN AREA DETERMINED TO BE INSIDE THE 100-YEAR FLOODPLAIN WITH BASE FLOOD ELEVATIONS.

EXISTING DRAINAGE CONDITIONS:

THE DRAINAGE ANALYSIS FOR THIS SUBDIVISION IS IN ACCORDANCE WITH SETION 22 OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM), ENTITLED "DRAINAGE, FLOOD CONTROL, AND EROSION CONTROL " THE DESIGN STORM USED FOR BOTH UNDEVELOPED AND DEVELOPED CONDITIONS IS THE 100-YEAR, 6-HOUR STORM EVENT FOR RUNOFF. THE SITE IS LOCATED IN ZONE 3 SO THE 100-YEAR, 6-HOUR STORM EVENT IS 2.60 INCHES.

LOTS 17 & 18 ARE LOCATED IN NORTH ALBUQUERQUE ACRES, AT THE NORTHWEST CORNER OF THE VENTURA STREET/SIGNAL AVENUE INTERSECTION. THE LOTS DRAIN FROM SOUTHEAST TO NORTHWEST TO THE LA CUEVA ARROYO. THE PEAK RUNOFF FROM THE LOTS UNDER EXISTING CONDITIONS IS 2.25 CFS DURING A 100-YEAR, 6-HOUR STORM. THE MAJORITY IS CURRENTLY ENCUMBERED BY A FLOOD HAZARD ZONE AE.

DEVELOPED DRAINAGE CONDITIONS:

THIS PROJECT INVOLVES THE CONSTRUCTION OF A RESIDENTIAL SUBDIVISION WITH 6 LOTS. THE SUBDIVISION WILL DRAIN FROM EAST TO WEST IN THE PRIVATE STREET TO A 5-FOOT WIDE CONCRETE CHANNEL ALONG THE WEST PROPERTY BOUNDARY. THIS CONCRETE CHANNEL WILL DRAIN SOUTH TO A 24-INCH WIDE SIDEWALK CULVERT TO SIGNAL AVENUE. THE TOTAL DISCHARGE FROM THE SUBDIVISION DURING A 100-YEAR, 6-HOUR STORM IS 5.19 CFS. THE FIRST FLUSH VOLUME FROM THE SUBDIVISION FOR A 0.44-INCH RAIN IS 960 CUBIC-FEET. ON EACH LOT THE AREA BEHIND THE BASK OF THE CURB WILL BE DEPRESSED TO ALLOW FOR THE RETENTION OF THE FIRST FLUSH VOLUME.

ALONG THE EASTERN AND NORTHERN BOUNDARY OF THE DEVELOPED AREA WILL BE A SCOUR WALL TO PROTECT THE SUBDIVISION FROM UPSTREAM FLOWS IN THE LA CUEVA ARROYO. THE SCOUR WALL WILL BE AS DEEP AS 8 FEET BELOW THE ARROYO BOTTOM TO PROTECT THE SUBDIVISION AGAINST SCOUR DURING STORM EVENTS. A HEC-RAS ANALYSIS IS CURRENTLY BEING PERFORMED TO DETERMINE THE IMPROVEMENTS WITHIN THE LA CUEVA ARROYO TO BE CONSTRUCTED TO BOTH PROTECT THE SUBDIVISION AND TO REMOVE THE FLOOD HAZARD ZONE THROGH A LOMR TO FEMA. THIS ANALYSIS WILL BE SUBMITTED AS A SUPPLEMENT TO THIS GRADING AND DRAINAGE PLAN.

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT A (%)	B (%)	C (%)	D (%)	WEIGHTED E (in)	100-YEAR PRECIPITATION V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(24-hr) (acre-ft)	V(24-hr) (cu-ft)	Q (cfs)
EXISTING CONDITIONS											
SITE	1.2020	100.00	0.00	0.00	0.00	0.66	0.07	2,880	0.07	2,880	2.25
TOTAL RUNOFF	1.20						0.07	2,880	0.07	2,880	2.25
PROPOSED CONDITIONS											
SITE	1.2020	0.00	17.60	17.70	64.70	1.92	0.19	8,365	0.22	9,777	5.19
TOTAL RUNOFF	1.20						0.19	8,365	0.22	9,777	5.19
EXCESS PRECIP.		0.66	0.92	1.29	2.36	E. (in)					
PEAK DISCHARGE		1.87	2.6	3.45	5.02	Q_{PI} (cfs)					

WEIGHTED E (in) = $(E_A)(\%A) + (E_B)(\%B) + (E_C)(\%C) + (E_D)(\%D)$
$V_{6\text{-HR}}$ (acre-ft) = (WEIGHTED E)(AREA)/12
V_{10DAY} (acre-ft) = $V_{6\text{-HR}} + (A_C)(P_{10DAY} - P_{6\text{-HR}})/12$
Q (cfs) = $(Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)$

ZONE = 3
$P_{6\text{-HR}}$ (in.) = 2.60
$P_{24\text{-HR}}$ (in.) = 3.10
P_{10DAY} (in.) = 4.90

BENCHMARKS
AGRS Aluminum Cap stamped "7-C19 1995"
From the intersection of I-25 and Paseo Del Norte NE travel east on
Paseo Del Norte 1.87 miles to Barstow Street NE. Turn left and travel
north on Barstow Street 0.65 miles to Signal Avenue NE. The station is
located on the NNW curb return.
Geographic Position, in feet (NAD83)
N.M. State Plane Coordinates (Central Zone)
N=1522068.520, E=1550417.138, G-G=0.999650745, DA=-00°10'24.78"
Elevation, in feet (NAVD88) = 5485.723

0 20 40
SCALE IN FEET
CONTOUR INTERVAL = 1 FOOT

Thompson Engineering Consultants, Inc.
P.O. BOX 65760
ALBUQUERQUE, NM 87193
PHONE: (505) 271-2198
FAX: (505) 880-9245
tecnm@yahoo.com

NO.	REVISION	BY	DATE

PROJECT:
DATE:
HORIZ. SCALE:
VERT. SCALE:

DRAWN BY: DEM
CHECKED BY:
APPROVED BY:
FILE:

DAVID E. THOMPSON 9677 REGISTERED PROFESSIONAL ENGINEER
4-20-18

SIGNAL VILLAGE

GRADING AND DRAINAGE PLAN

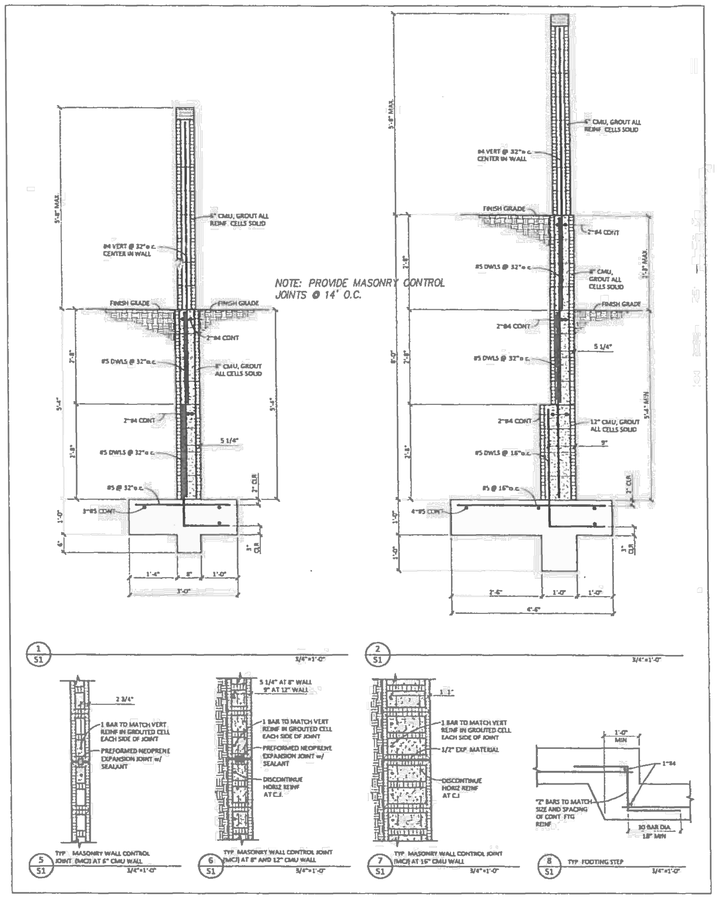
CITY/COUNTY REVIEW

DEPARTMENT	SIGN-OFF	DATE
WASTEWATER MGMT. DIV.		
WATER SERVICES		
SUBDIVISION ENG.		
STREETS		
TRAFFIC		

FOR CITY/COUNTY USE ONLY

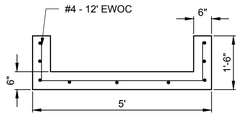
SHEET No.

1 OF 2



REINFORCED CONCRETE MASONRY / SCOUR WALL

NO SCALE



5' WIDE CONCRETE CHANNEL DETAIL

NTS

Thompson Engineering Consultants, Inc.
P.O. BOX 69760
ISSAQUAH, WA 98168
PHONE: (206) 271-2198
FAX: (206) 880-8248
tecm@yahoo.com

NO.	REVISION	BY	DATE

PROJECT:
DATE:
HORIZ. SCALE:
VERT. SCALE:

DRAWN BY: DEM
CHECKED BY:
APPROVED BY:
FILE:

DAVID E. MCKINLEY 9677 LICENSED PROFESSIONAL ENGINEER
4-20-18

SIGNAL VILLAGE

MISCELLANEOUS DETAILS

CITY/COUNTY REVIEW

DEPARTMENT	SIGN-OFF	DATE
WASTEWATER MGMT. DIV.		
WATER SERVICES		
SUBDIVISION ENG.		
STREETS		
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2 OF 2