CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

March 10, 2015

Roy Gibson, PE
BOHANNAN-HUSTON, INC.
7500 Jefferson Street NE Courtyard I
Albuquerque, NM 87109

RE: **COA Transit Department Yale Maintenance**
Grading Plan and Supplemental Calculations
Engineer's Stamp Date: 2-26-15 (File: L15D004)

Dear Mr. Gibson:

Based upon the information provided in your submittal received 2-27-15, the above referenced plan is approved for Building Permit, Grading and Paving Permit, and Work Order. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf: via Email: Recipient, Monica Ortiz

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: COA Transit Departement Yale Maintenance Building Permit #: _____ City Drainage #: _____

DRB#: _____ EPC#: _____ Work Order#: COA # 5798.91

Legal Description: Tract A of Municipal Addn#14

City Address: 607 Yale Blvd SE, Albuquerque NM 87103

Engineering Firm: Bohannan Huston, Inc. Contact: Roy Gibson

Address: 7500 Jefferson St NE Albuquerque, NM 87109

Phone#: (505) 823-1000 Fax#: (505) 798-7988 E-mail: rgibson@bhinc.com

Owner: City of Albuquerque Transit Department Contact: Shabih Rizvi

Address: Alvarado Transportation Center, 100 First Street SW, Albuquerque, NM 87102-3412

Phone#: (505) 724-3134 Fax#: (505) 724-3196 E-mail: srizvi@cabq.gov

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL
- X DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ____ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ ENGINEER'S CERT (ESC)
- ____ SO-19
- ____ OTHER (FOR INFORMATION ONLY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

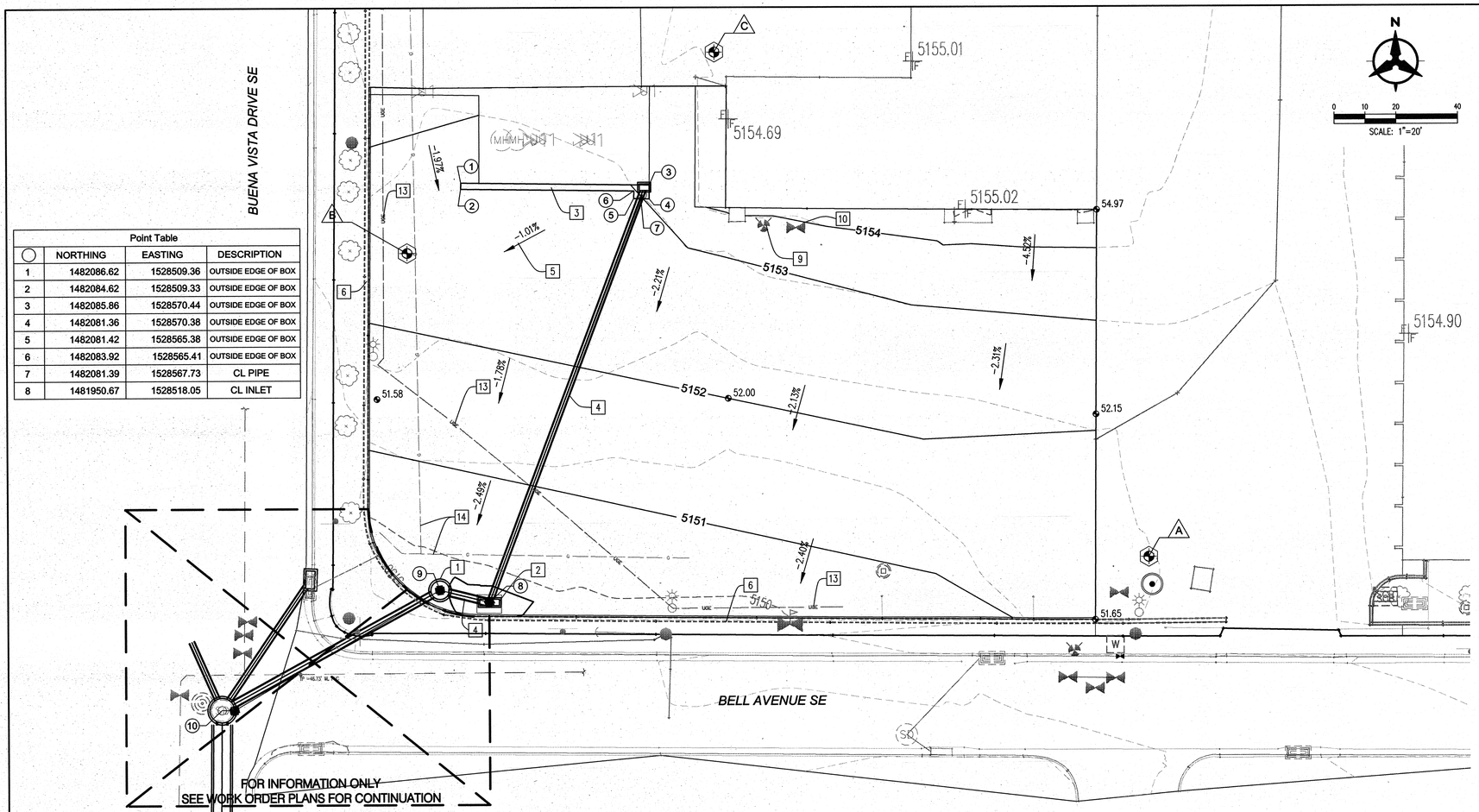
- ____ SIA/FINANCIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- X GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ GRADING CERTIFICATION
- ____ SO-19 APPROVAL
- ____ ESC PERMIT APPROVAL
- ____ ESC CERT. ACCEPTANCE
- X OTHER (FOR INFORMATION ONLY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes X No ____ Copy Provided

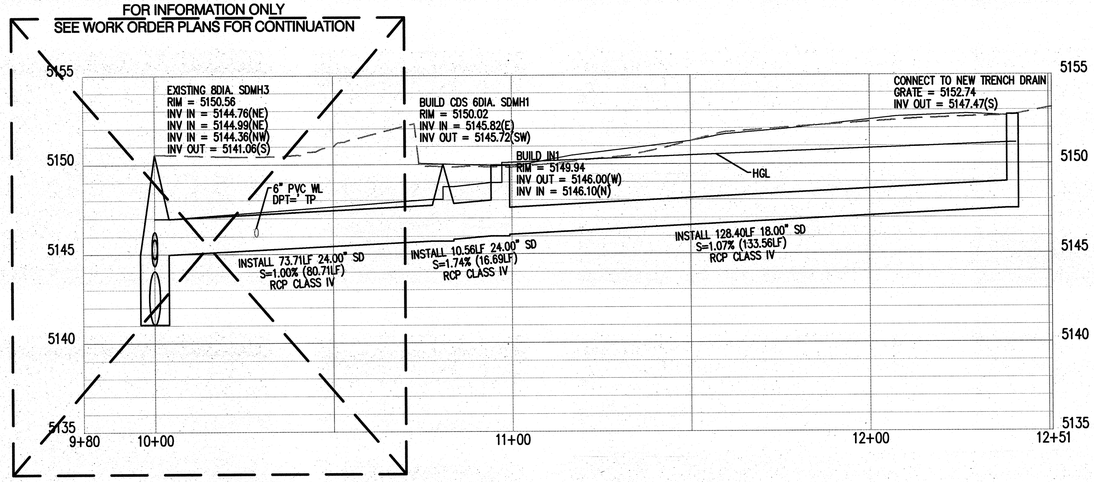
DATE SUBMITTED: 02-27-15 By: Roy Glenn Gibson, PE

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development



Point Table			
	NORTHING	EASTING	DESCRIPTION
1	1482086.62	1528509.36	OUTSIDE EDGE OF BOX
2	1482084.62	1528509.33	OUTSIDE EDGE OF BOX
3	1482085.86	1528570.44	OUTSIDE EDGE OF BOX
4	1482081.36	1528570.38	OUTSIDE EDGE OF BOX
5	1482081.42	1528565.38	OUTSIDE EDGE OF BOX
6	1482083.92	1528565.41	OUTSIDE EDGE OF BOX
7	1482081.39	1528567.73	CL PIPE
8	1481950.67	1528518.05	CL INLET



MANHOLE CONNECTION DETAIL

GENERAL NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. ALL CURVE DATA AND DIMENSIONS ARE CALCULATED FROM CENTERLINE OF PIPE OR MANHOLE. ALL SAS AND SD SLOPES ARE CALCULATED TO TRUE PIPE DIMENSIONS FROM INVERT TO INVERT.
3. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.
4. CONTRACTOR SHALL PARK EQUIPMENT AND VEHICLES AS NOT TO INTERFERE WITH NORMAL ACTIVITIES OF RESIDENTS OR OTHER CONTRACTORS ON SITE.
5. ANY DAMAGE TO THE EXISTING FACILITIES (CURB & GUTTER, PAVEMENT, CONDUITS, LANDSCAPING, UTILITY LINES, ETC.) DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTORS' EXPENSE.
6. MANHOLE RIMS AND CATH BASIN INLET ELEVATIONS ARE APPROXIMATE.
7. MANHOLES SHALL BE TYPE "E" BUILT PER COA STD DRAWING 2102 UNLESS OTHERWISE NOTED.
8. FOR RCP STORM DRAIN CONSTRUCTION: ALL RCP JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION SHALL DETERMINE WHICH JOINTS ARE TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.
9. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED OUT IN ACCORDANCE WITH OSHA 29 CFR 1926.650 SUBPART P.
10. AREA STORM DRAIN INLETS SHALL BE DOUBLE TYPE "D" INLETS BUILT PER COA STD. DRAWING 2206.
11. INLET GRATES SHALL BE BUILT PER COA STD. DRAWING 2220.
12. LOCATION DATA FOR MANHOLES AND INLETS IN CENTER OF STRUCTURE UNLESS NOTED OTHERWISE.
13. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
14. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT.
15. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
16. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING. CONTRACTOR SHALL FOLLOW SWPPP AND BMP.
17. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.
18. GRADE ELEVATIONS WHERE NOTED ARE FOR FLOWLINE OF CURB UNLESS OTHERWISE SPECIFIED.

KEYED NOTES

1. PROPOSED CDS MANHOLE, 6' DIA. PER DETAIL, SHEET 6. SYSTEM MODEL 3020-6.
2. PROPOSED DROP INLET TYPE DOUBLE D PER COA STD DWG 2206.
3. INSTALL TRENCH DRAIN PER DETAILS, SHEET S2.
4. PROPOSED RCP CLASS IV.
5. PROPOSED FUEL STORAGE TANK
6. EXISTING CMU BLOCK WALL TO REMAIN
7. NOT USED
8. NOT USED
9. EXISTING FIRE HYDRANT TO REMAIN.
10. ADJUST WATER VALVE TO GRADE
11. NOT USED
12. EXISTING LIGHT POLE TO REMAIN.
13. EXISTING UTILITY TO REMAIN. DO NOT DISTURB.
14. OUT OF SERVICE GAS LINE.

AS-BUILT INFORMATION
CONTRACTOR DATE
WORKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CHECKED BY DATE

BENCH MARKS
A X = 1528731.7420 Y = 1481964.7220
B X = 1528491.8210 Y = 1482063.7650
C X = 1528491.8210 Y = 1482063.7650

MICRO-FILM INFORMATION
STAMPED "20-L16 1984"
4" ALUMINUM DISC SET IN CURB
N=1481580.00 E=1531683.860 ELEV. 5210.836
HORIZONTAL DATUM NAD83 VERTICAL DATUM 1988
RECORDED BY DATE
NO. DATE

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
ROY G. GIBSON
NEW MEXICO
18772
REGISTERED PROFESSIONAL ENGINEER
07-24-15

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY: RGG	DATE: 2/2015
		DRAWN BY: LAH	DATE: 2/2015
		CHECKED BY: RGG	DATE: 2/2015

Bohannan Huston
www.bhinc.com 800.877.5332

YALE MAINTENANCE FACILITY - BUILDING PERMIT
GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

5798.91	DRAWING NO.	ZONE MAP NO. L-15	SHEET 4 OF 17

BHI JOB NO. 20130196

P:\20130196\MUNI\Plans\Building Permit Plans\20130196BP_Grading Plan.dwg
Thu, 26-Feb-2015 - 2:13:pm, Plotted by: LAHINDE

STUDY PHASE
LETTER REPORT
FOR
COAL AVENUE STORM DRAIN
REHABILITATION PROJECT
CITY PROJECT NO. 4522.91

Prepared by:
Thompson Engineering Consultants, Inc.
P.O. Box 65760
Albuquerque, NM 87193

July 2008

Table 2 Existing and Proposed Storm Drain Capacities

Analysis Point	Existing Allowable Flows, CFS	Proposed System Flows, CFS	Increase in Flows, CFS
Coal at Harvard	80	194	114
Harvard Diversion	*	125	125
Garfield just east of Yale (from cattle guard)	160	161	1
Yale just north of Yale and Garfield	110	131	21
Yale at the intersection of Yale and Garfield	270	417	147
Buena Vista Diversion	98	124	26
South of Buena Vista Diversion	172	294	122
Just north of Yale/Bell diversion**	182	304	122
Bell Diversion**	14	147	133
Yale at the Yale/Santa Clara confluence	180	175	-5

* Harvard Diversion is planned improvements for the proposed system and is not currently part of the existing system.
** Flows to these points include flows form catch basins.

These proposed improvements will provide for an additional 147 CFS to be conveyed through the Yale system to the diversions and to the ACC system. The system will be under pressure to optimize the carrying capacity, however the HGL will remain below the street elevation at all locations.

C. POTENTIAL CONFLICTS

1. BELL DIVERSION STORM DRAIN

In Bell and Buena Vista, the new 60" RCP will be constructed in the same corridor as the existing 36" RCP, thereby minimizing utility conflicts. In Bell, at the location where the 60" RCP crosses the 6" water line from Wilmoore Avenue, the waterline will be lowered. There may also be other "dry" utility lines that need relocation.

2. HARVARD DIVERSION STORM DRAIN

In Yale Boulevard there is a 10" water line in the southbound lanes. In Garfield there is a 10" waterline in the street with a connection to a 6" waterline in the alley between Yale and Harvard. At this time it is anticipated that the 6" waterline at the alley will be lowered to allow for construction of the 60" RCP. In Yale Boulevard there is a 12" sanitary sewer line in the street. In Garfield there is an 18" sanitary sewer line in the street and an 8" sanitary sewer line in the alley that connects to the 18" line in Garfield. At this time there are no sanitary sewer relocation anticipated. There may also be other "dry" utility lines that need relocation.

THOMPSON Engineering Consultants, Inc.

April 8, 2014

Mr. Roy G. Gibson, P.E.
Bohannan Huston, Inc.
7500 Jefferson Street NE
Albuquerque, NM 87109

Re: BELL AND BUENA VISTA STORM DRAIN HYDROLOGIC AND HYDRAULIC ANALYSES

Dear Mr. Gibson:

Thompson Engineering Consultants (TEC) and Smith Engineering Company (Smith) has performed hydrologic analysis and hydraulics analysis of the area south of Yale Boulevard and north of Avenida de Cesar Chavez (ACC) that drains to the storm drains in Bell Avenue and Buena Vista Drive recently constructed with the original Coal Storm Drain System (CPN 452291) to check for added capacity for flows from the Yale Transit Facility. This facility is located on Yale Boulevard bordering Buena Vista Drive on the west and Bell Avenue on the south. The specific part of the Coal Storm Drain system that is affected by this study is the Bell/Buena Vista Storm Drain system beginning at Bell and Yale, west in Bell to Buena Vista, and then south to the connection to the existing storm drain located in ACC. Bohannan Huston (BHI) is currently preparing a plan for draining runoff from the Yale Transit Facility directly into the recently constructed Bell/Buena Vista Storm Drain System.

The Yale Transit site currently discharges through a small diameter PVC pipe to the back of a catch basin located on Buena Vista Drive at the NE quadrant of Bell/Buena Vista intersection. The City of Albuquerque (COA) Transit Department would like to discharge developed runoff from the Yale Transit Facility to the Bell/Buena Vista system, either along Bell or at the intersection of Bell and Buena Vista. This study investigated the capacity of the Bell/Buena Vista Storm Drain for the added 26 CFS (developed flows) from the Yale Transit Facility. The results of the analysis are presented below.

Hydrologic Analysis: The hydrologic criteria in Section 22 of the City of Albuquerque Development Process Manual (DPM), entitled "Drainage, Flood Control, and Erosion Control," was followed to perform the analyses given in this report. The design storm used for existing conditions is the 100-year, 6-hour storm event for peak flow computations. The project is located in Zone 2, which has a 100-year, 6-hour design storm of 2.35 inches.

The scope of work identified analyzing the basins south of Yale Boulevard and north of ACC that drain to Bell Avenue and Buena Vista Drive. Aerial mapping (2006) of the project area with 2' contours was obtained from AMAFCA to determine drainage basin delineation. The aerial mapping shows that there are a total of 8 basins that drain to Bell Avenue and Buena Vista Drive.

Exhibit I shows the drainage basins that were delineated using the aerial mapping and field investigations. Runoff from Basins A, B, and G drain to Bell Avenue to be collected by the existing 60-inch storm drain through catch basins. Runoff from Basins D and E drain to Buena Vista Drive north of the Bell/ Buena Vista intersection. Basin C is the portion of the Yale Transit Facility that

drains to either Bell Avenue or Buena Vista Drive. Peak flows from Basin F drains directly to the Buena Vista storm drain through an 18-inch storm drain connection. Finally, runoff from Basin H drains to Buena Vista Drive.

Basin characteristics were computed for input to an Excel Spreadsheet to calculate peak flows. To obtain the percent of Land Treatment D for the residential areas, first all of the residential lots in each basin were counted and divided by the basin area to get a DU/ACRE value, next the DU/ACRE value was input to the calculation for single-family residential land use in Table A-5 of the DPM Section 22.2. For the commercial and multi-family areas the percent of Land Treatment D was determined by the aerial mapping. The remaining percentage for land treatment types was divided equally into Type B and Type C. Since all of the basins are less than 40 acres in size, it was assumed that the time to peak was the minimum allowed of 0.17 hours. The peak flows for each basin are shown in the Table entitled "100-Year Hydrologic Calculations" at the end of the report.

Runoff from Basins A, B, and G, that drains to Bell Avenue and collected in the 60-inch storm drain, totals 23.0 CFS. Peak flows from Basins D and E draining to Buena Vista Drive north of Bell Avenue total 34.5 CFS. These flows are conveyed in Buena Vista to the intersection at Bell. Approximately 12 CFS is collected by storm inlets in Buena Vista just north of Bell. Therefore, about 22.5 CFS continues south in Buena Vista. A total of 19.3 CFS is discharged from Basin F directly to the Buena Vista Storm Drain through an 18-inch storm drain. A total of 9.4 CFS runoff from Basin H drains to Buena Vista Drive. Storm inlets in Buena Vista Drive just north of ACC collect about 11 CFS of the 31.9 CFS in the street. Therefore, 20.9 CFS continues to ACC to be collected by the storm drain downstream.

Overall Hydraulic Model Modifications: The Bell/Buena Vista storm drain system was modeled using Haestad StormCad software to calculate the hydraulic grade line (HGL) of the system. TEC provided Smith with as-built drawings of the storm drain system. Smith modified the hydraulic model to reflect the as-built conditions. The as-built drawings were not significantly changed from the original design. It should be noted that there is approximately 34.5 CFS moving south on Buena Vista to Bell from developed drainage basins to the north. The model incorporates the two existing catch basins located in Buena Vista on each side of the street north of Bell. And, although the flow is 34.5 CFS, the catch basins are modeled to intercept 6 CFS each for a total of 12 CFS. Approximately 22.5 CFS will continue to by-pass these catch basins and will flow south on Buena Vista. These flows can either be intercepted by the catch basins constructed at the south end of Buena Vista near ACC or continue south into ACC to be intercepted downstream. No additional catch basins or modifications were made to increase the interception capacity at Bell/Buena Vista. The primary change when the Coal Storm Drain System was constructed was the addition of a new manhole at the intersection of Bell and Buena Vista. The system model was run and the new HGL was compared to the original model. No significant changes in the HGL between the original model and the as-built model were observed.

Option 1 - Bell Connection: The system model was modified to have a 24-inch diameter storm drain at a slope of 0.02 ft/ft connect to the existing 60-inch diameter storm drain system (slope = 0.006 ft/ft) at a Tee-manhole at Sta. 42+29. A total of 26 CFS was input to the 24-inch storm drain and the resulting increase in the HGL in the Bell system propagated up-station to the

existing junction box at Bell and Yale. The additional 26 CFS flow at this point resulted in a 1.6-foot increase in the HGL at the Yale/Bell junction box. The Yale/Bell junction box was designed to deliver flows to the south or to the west based on flow depth in the downstream pipes. The higher HGL in the 60-inch storm drain in Bell would reduce the flow rate to the Bell/Buena Vista System and therefore, this connection is detrimental to the overall system operation.

Option 2 – Bell/Buena Vista Connection: The system model was modified to have a 24-inch diameter storm drain connected to the existing manhole at Sta. 66+47.70 (Bell/Buena Vista intersection). The downstream pipe is a 66-inch RCP at a slope of 0.006 ft/ft and this system has a higher carrying capacity than the 60-inch RCP located in Bell. Due to the higher flow capacity of the larger pipe, the added 26 CFS had little effect on the HGL in the 66-inch storm drain in Buena Vista. The HGL elevation was checked in the Bell system just south of the Yale/Bell Junction Box and there was no change in the HGL elevation from this model to the as-built model. The HGL elevation in the manhole at Sta. 66+47.70 is 5144.99. The HGL plot and data (for both pipe and manholes) in table form are included at the end of this report.

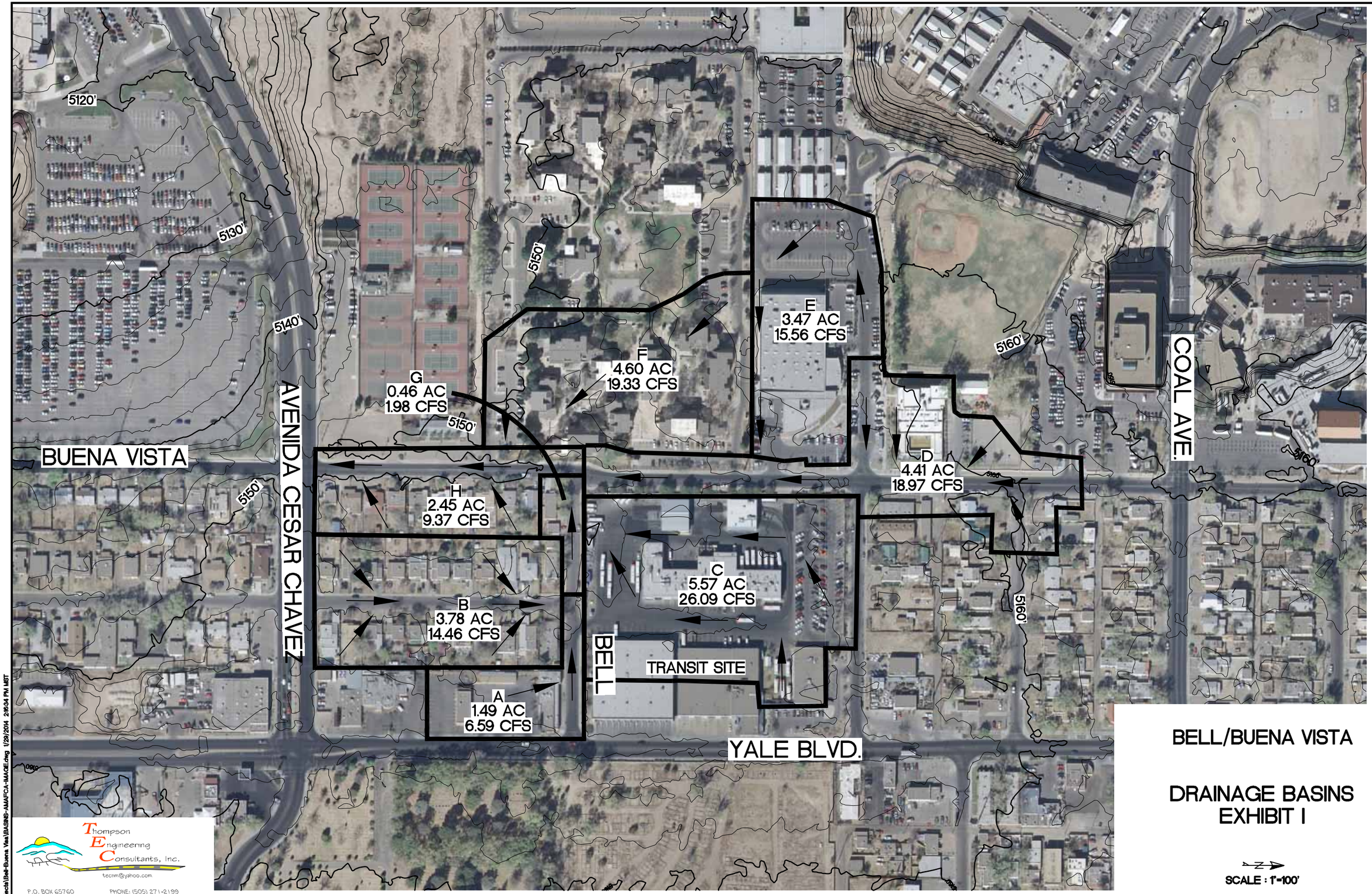
Conclusions: An additional 26 CFS flow rate from the Yale Transit Facility at the manhole at Sta. 66+47.70 in the Bell/Buena Vista storm drain system appears to have no detrimental effect on the HGL of the storm drain system at Yale and Bell. For design purposes, we recommend using 5145.00 (NAVD 1988) as the beginning HGL in the manhole at Sta. 66+47.70 for subsequent upstream HGL calculations.

If you should have any questions about this letter report, please call me at 271-2199.

Sincerely,

David B. Thompson, P.E.

Enclosures



BELL/BUENA VISTA

DRAINAGE BASINS EXHIBIT I

SCALE : 1"=100'

Thompson Engineering Consultants, Inc.
tecnm@yahoo.com
P.O. BOX 65760
ALBUQUERQUE, NM 87193
PHONE: (505) 271-2199
FAX: (505) 830-9248

Y:\projects\Bell-Buena Vista\BASINS-AMAFCA-1MAGE.dwg 1/29/2014 2:16:34 PM MST

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											
Basin A	1.4900	0.00	7.00	7.00	86.00	1.96	0.24	10,584	0.29	12,445	6.59
Basin B	3.7800	0.00	22.00	22.00	56.00	1.61	0.51	22,056	0.58	25,129	14.46
Basin C	5.5700	0.00	0.00	1.00	99.00	2.11	0.98	42,664	1.16	50,671	26.09
Basin D	4.4100	0.00	10.00	10.00	80.00	1.89	0.69	30,208	0.81	35,330	18.97
Basin E	3.4700	0.00	5.00	5.00	90.00	2.00	0.58	25,236	0.68	29,771	15.62
Basin F	4.6000	0.00	12.50	12.50	75.00	1.83	0.70	30,536	0.82	35,546	19.33
Basin G	0.4600	0.00	10.00	10.00	80.00	1.89	0.07	3,151	0.08	3,685	1.98
Basin H	2.4500	0.00	22.00	22.00	56.00	1.61	0.33	14,295	0.37	16,288	9.37
TOTAL RUNOFF	26.23						4.10	178,731	4.79	208,865	112.41
EXCESS PRECIP.		0.53	0.78	1.13	2.12	E_i (in)					
PEAK DISCHARGE		1.56	2.28	3.14	4.7	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) = $V_{6\text{-HR}} + (A_D)(P_{10DAY} - P_{6\text{-HR}})/12$

Q (cfs) = $(Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)$

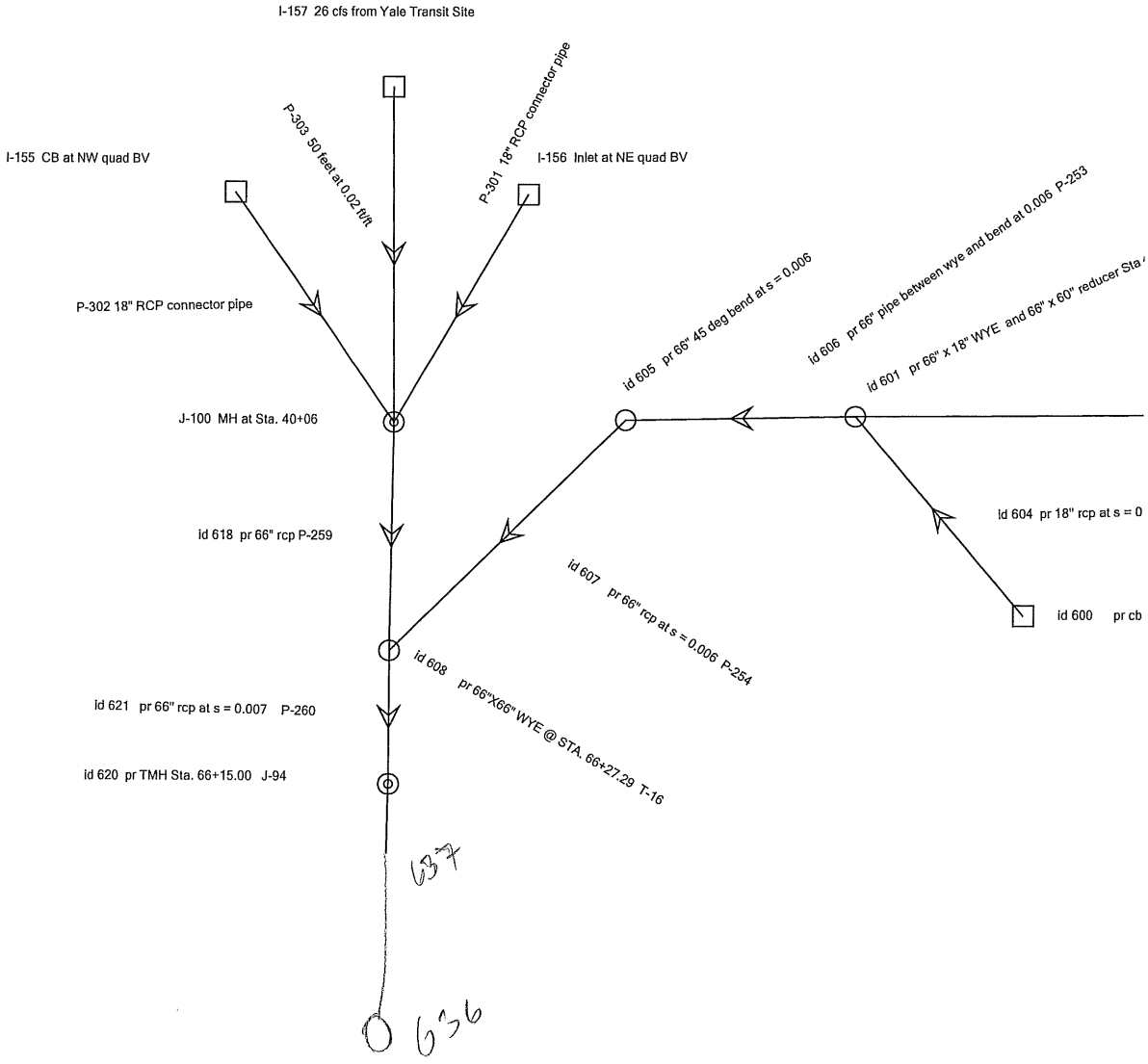
ZONE = 2

$P_{6\text{-HR}}$ (in.) = 2.35

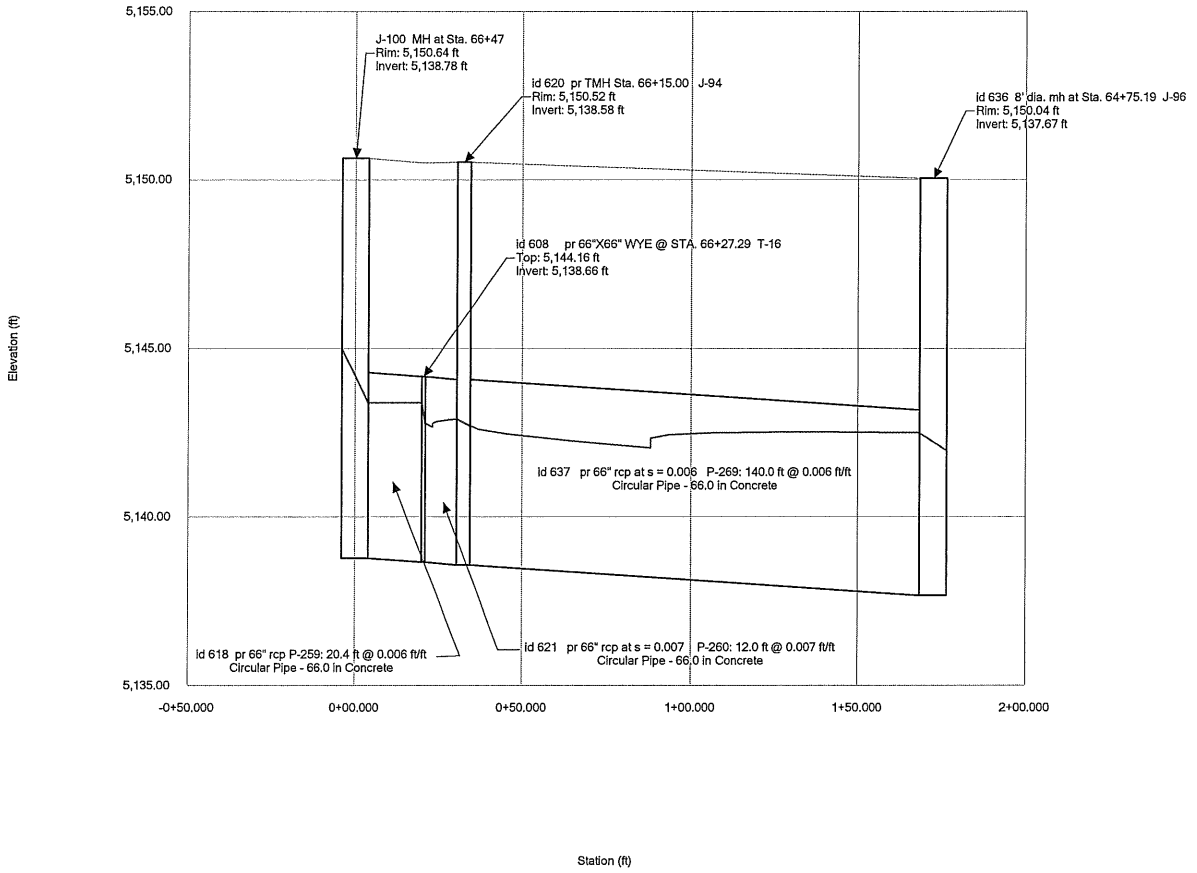
$P_{24\text{-HR}}$ (in.) = 2.75

P_{10DAY} (in.) = 3.95

Title: Scenario: Base



Title: Profile Report
Engineering Profile - Profile - 3 (26 cfs transit flow into system at bell and buena vista 022714.stc)



Buena Vista/Bell Storm Drain
System Analysis
Smith Project #????????
Add 26 cfs at Buena Vista and Bell
Pipe Data

Label	Start Node	Stop Node	Length (Unified) (ft)	Velocity (Average) (ft/s)	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Slope (ft/ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
id 618 pr 66" rcp P-259	J-100 MH at Sta. 66+47	id 608 pr 66X66" WYE @ STA. 66+27.29 T-16"	20.4	7.76	5138.78	5138.66	0.006	5143.38	5143.38
id 621 pr 66" rcp at s = 0.007 P-260	id 608 pr 66X66" WYE @ STA. 66+27.29 T-16"	id 620 pr TMH Sta. 66+15.00 J-94	12	12.79	5138.66	5138.58	0.007	5142.78	5142.9
id 637 pr 66" rcp at s = 0.006 P-269	id 620 pr TMH Sta. 66+15.00 J-94	id 636 8' dia. mh at Sta. 64+75.19 J-96	140	12.66	5138.58	5137.67	0.006	5142.7	5142.49

Buena Vista/Bell Storm Drain
System Analysis
Smith Project #???????
Add 26 cfs at Buena Vista and Bell
Manhole Data

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Elevation (Invert in 1) (ft)	Elevation (Invert in 2) (ft)	Elevation (Invert in 3) (ft)	Flow (Total Out) (ft^3/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
J-100 MH at Sta. 66+47	5150.64	5138.78	5140	5144.61	5144.5	38	5144.99	5143.38
id 620 pr TMH Sta. 66+15.00 J-94	5150.52	5138.58	5138.58	(N/A)	(N/A)	216.57	5142.9	5142.7
id 636 8' dia. mh at Sta. 64+75.19 J-96	5150.04	5137.67	5137.67	5141.4	(N/A)	236.57	5142.49	5141.97

From:	Daggett, Kevin
To:	Roy Gibson
Cc:	Rizvi, Shabih A.
Subject:	Stormceptor Approval
Date:	Tuesday, July 22, 2014 3:07:18 PM

Roy,

The Stormceptor is approved by the City of Albuquerque for use at the Yale Transit Facility.

Kevin Daggett, P.E., P.S.
Stormwater Section Manager

Department of Municipal Development
City of Albuquerque

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kdaggett@cabq.gov

From: Kurt Thorson
To: Rizvi, Shabih A.; Daggett, Kevin
Cc: Logan Brandenburg; Roy Gibson
Subject: Yale Transit Drainage review meeting
Date: Monday, June 02, 2014 2:06:26 PM
Attachments: image001.jpg

All, just to briefly summarize the meeting we held last Thursday at Kevin Daggett's, City of Albuquerque DMD Storm Drainage, office:

- Drainage Study completed by Dave Thompson has been reviewed by the City and is accepted with recommendations for a 24 inch culvert pipe to drain a stated 26 cfs from the site, into the existing Buena Vista storm drain. The new 24 inch line will be tied into an existing 8 foot diameter manhole in the intersection of Buena Vista and Bell.
- A 18 inch storm drain lateral from the manhole in Buena Vista/Bell leading back to the Transit site (shown in the construction plans for the Coal Avenue Storm Drain project COA#452291) was not constructed as shown in the original plans. Essentially, the 24 inch pipe described above, will serve the same purpose at the 18 inch line would have and will provide the needed additional capacity to the Transit site.
- No on-site storm drainage detention basins will be needed. Flows from the site can be directed to the far SW corner of the property and collected in a COA – Double "D" inlet. A new water quality manhole will be installed between the inlets and the existing manhole. Information for CDS manholes (Contech – Continuous Deflective Separation) was shared at the meeting. see link below for a video of this product. The City will review this application further and confirm that they wish to utilize it on this project. City Transit indicated that the CDS manhole would be maintained by them through an existing maintenance contract they have in place for other on-site needs. http://www.conteches.com/products/stormwater-management/treatment/cds.aspx#
- As BHI develops the site grading plans, a cattle guard, or transverse inlet may be considered for installation immediate south of the bus wash station with an outlet to the west side of the paved lot. This inlet would minimize flows from passing to the south across the bus staging area. BHI will review these details (if it appears feasible to install such an inlet) with City Storm Drainage staff.
- With this storm drain concept now in place, BHI will provide the City Transit staff with anticipated construction costs for other key project elements which include lighting system upgrades and a new underground fuel storage tank. BHI will establish paving cost options and review them with the Transit staff and determine whether the bus staging area will be paved with asphalt or PCCP. Preliminary plans for the site improvements, including the drainage inlets, water quality manhole and tie to the existing storm drain manhole, will be completed in the coming months and reviewed through DRC.

If anyone recalls discussion of other items than summarized above, please let me know. Thank you

for your attendance and participation at the meeting. We look forward to working closely with you now as this project enters the design phase.

Kurt Thorson
Senior Vice President
Traffic & Transportation
Direct line: 505.798.7854

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