



CENTERLINE

520 Kansas City Street ♦ Suite 307 Rapid City, South Dakota 57701
 PH: 605-341-3193 FX: 605-341-3358 centrline@aol.com

**Initial Development Plan
 Concept Memorandum: Site Civil**

**TO: Growth Management
 FROM: Lawrence M. Kostaneski, PE
 DATE: November 8, 2006**

RE: Cornerstone Transitional Housing.
 CC: Development Team

Message:

The referenced project is proposed for Tract 6 Signal Heights (Sec 1 1N 7E) as shown on the drawings.

General: Building and site amenities are included in the architect's package. Request landscape points reduction to 12,000 due to heavily vegetated areas east and south.

Access: A single approach is proposed at the north end of the lot, close to an existing approach section. Sight distance is approximately 400 ft in each direction along E. Blvd. Request to waive the requirement for sidewalk along East Blvd. Topographic constraints. West side is more amenable to sidewalks.

Grading: Engineered fill up to 5 ft will be used under the structure footprint, creating a building accessible from 3 sides. Cut and fill for access drives, parking lots, etc. will be obtained from on-site grading. Part of the needed fill will come from a proposed detention pond at the south end of the parking lot. This would require extending the toe of the existing slope to the bottom of the pond in this isolated area. It's expected that fill will be placed along the east toe to direct runoff across the parking lot.

Geo-tech: Several reports have been generated for this location. The most recent is attached.

Drainage: Preliminary modeling indicates that the 100 yr generated flows can be metered on site with the proposed pond and parking lot inlet. It is possible to keep discharge from the site to pre-developed rates. The agencies are in contact with the downstream property owner to allow some minor grading and rip rap placement on that property.

Water: An 8" main is proposed that will extend from an existing 8" main on Crescent Dr., with service from the Palo Verde system (3546).. The city decided not to require a connection to another main of the extension to this project from Crescent Dr. Geo-technical evaluation indicated the extension should be perpendicular to the existing contours. Since the existing system is fairly convoluted, a distribution schematic and demand summary for the project is included for review and concurrence by the city. The model assumes 1,000 gpm from Robbinsdale Reservoir (St Charles and 5th St., J 16)

Sewer: The existing main is proposed to be relocated as shown. The new segment will be placed west of the existing slope toe. Replacing 2 existing manholes is proposed.

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Please call with questions. Thanks.

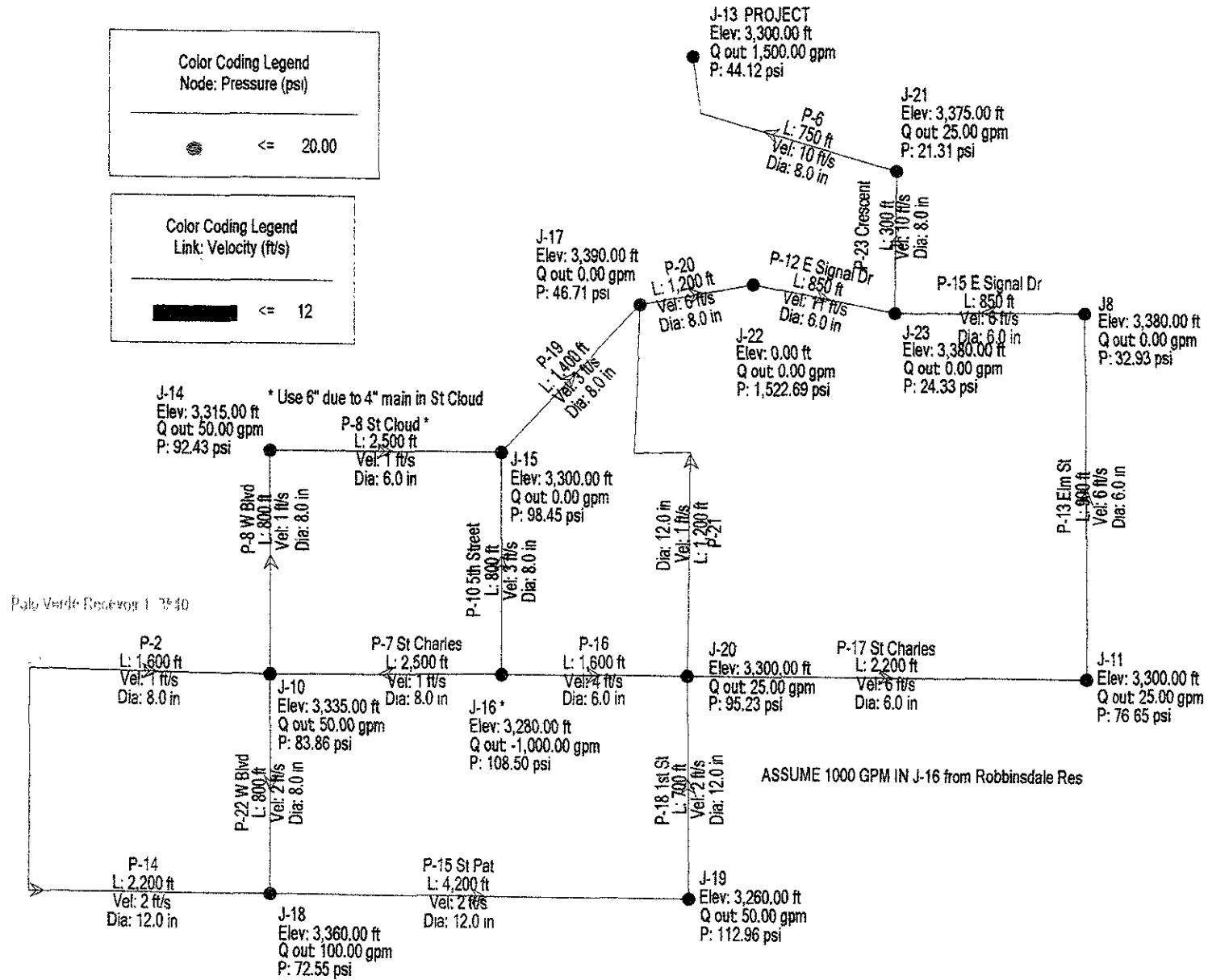
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Rapid City Growth

Development Department

Scenario: Cornerstone 8" Ext

CORNERSTONE TRANSITIONAL HOUSING 11/08/06



Title: Cornerstone Transitional Housing- Water Extension

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Project Engineer: Centerline

WaterCAD v7 0 [07.00.049 00]

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Scenario: Cornerstone 8" Ext
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-23	3,380.00	Demand	0.00	0.00	3,436.22	24.33
J-21	3,375.00	Demand	25.00	25.00	3,424.25	21.31
J-10	3,335.00	Demand	50.00	50.00	3,528.82	83.86
J-11	3,300.00	Demand	25.00	25.00	3,477.16	76.65
J-13 PROJECT	3,300.00	Demand	1,500.00	1,500.00	3,401.98	44.12
J-14	3,315.00	Demand	50.00	50.00	3,528.63	92.43
J-15	3,300.00	Demand	0.00	0.00	3,527.54	98.45
J-16 *	3,280.00	Inflow	1,000.00	-1,000.00	3,530.77	108.50
J-17	3,390.00	Demand	0.00	0.00	3,497.96	46.71
J8	3,380.00	Demand	0.00	0.00	3,456.11	32.93
J-18	3,360.00	Demand	100.00	100.00	3,527.69	72.55
J-19	3,260.00	Demand	50.00	50.00	3,521.09	112.96
J-20	3,300.00	Demand	25.00	25.00	3,520.12	95.23
J-22	0.00	Demand	0.00	0.00	3,519.42	1,522.69

Scenario: Cornerstone 8" Ext
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Hazen-Williams C	Discharge (gpm)	Velocity (ft/s)
P-23 Crescent	300	8.0	130.0	1,525.00	10
P-2	1,600	8.0	150.0	203.68	1
P-6	750	8.0	150.0	1,500.00	10
P-8 W Blvd	800	8.0	150.0	112.23	1
P-8 St Cloud *	2,500	6.0	130.0	62.23	1
P-7 St Charles	2,500	8.0	150.0	-209.91	1
P-10 5th Street	800	8.0	140.0	-476.14	3
P-12 E Signal Dr	850	6.0	130.0	988.72	11
P-13 Elm St	900	6.0	130.0	536.28	6
P-15 E Signal Dr	850	6.0	130.0	-536.28	6
P-14	2,200	12.0	130.0	621.32	2
P-15 St Pat	4,200	12.0	130.0	772.67	2
P-16	1,600	6.0	150.0	313.96	4
P-17 St Charles	2,200	6.0	150.0	561.28	6
P-18 1st St	700	12.0	130.0	722.67	2
P-19	1,400	8.0	130.0	538.37	3
P-20	1,200	8.0	130.0	988.72	6
P-21	1,200	12.0	130.0	450.35	1
P-22 W Blvd	800	8.0	130.0	251.35	2



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August 17, 2006

Lawrence Kostaneski P.E.
Centerline
520 Kansas City Street, Suite 307
Rapid City, South Dakota 57701

Subject: Geotechnical Engineering Review
Proposed Cornerstone Transitional Housing Project
Rapid City, South Dakota
AET# 18-02202

Dear Larry:

As requested, American Engineering Testing, Inc. (AET) has reviewed the information submitted to our office regarding the proposed Cornerstone Transitional Housing project along East Boulevard in Rapid City. The submitted information consisted of the latest site development plan for grading, drainage, utilities and access and a copy of a slope stability assessment done for the apartment complex located upslope to the southeast of this site.

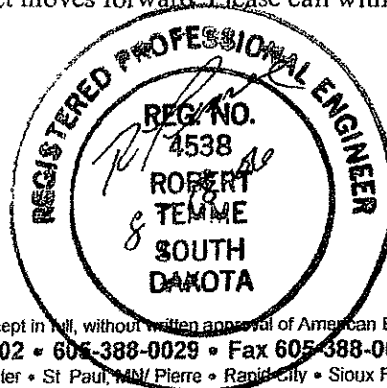
From a geotechnical viewpoint, the main areas of concern would be with the proposed grading/drainage and the extension of a water line down the face of the southeast slope. The following provides our opinions regarding these issues:

- The south detention basin will require cuts of approximately 15 feet. Your plan shows that this excavation will be made while maintaining the 3H:1V slope of the hillside, there by simply extending the toe of the slope in this area. The water collected in this detention basin will be routed underground to the north and discharged off site. It is our opinion this plan does not significantly increase any slope stability issues to this site or to the upperlying slope.
- The water line to be placed down the face of the southeast slope to the site has the possibility of routing subsurface water to the shales within the slope. However, as this type of utility construction has already been done for both the sanitary and the storm sewers, with no adverse effects to the slope, it is again our opinion this line placement should be acceptable at this site.

AET should be allowed to review the final construction drawings to verify that the preliminary plan used in this review has not been appreciably altered. AET is available for further review and site exploration, if necessary, as this project moves forward. Please call with any questions.

Sincerely;

Robert Temme P.E.
South Dakota Operations Manager





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October 17, 2006

Lawrence Kostaneski P.E.
Centerline
520 Kansas City Street, Suite 307
Rapid City, South Dakota 57701

Subject: Project Status Report
Geotechnical Engineering Services
Proposed Cornerstone Transitional Housing Project
Rapid City, South Dakota
AET# 18-02202

Dear Larry:

This letter provides a status report of the geotechnical engineering and geological services performed to date for the proposed Cornerstone Transitional Housing project to be built along East Boulevard in Rapid City, South Dakota. Based on this past work, it is AET's opinion the site is suitable for construction of the proposed project as planned. In addition, a listing of future anticipated AET services is also included based on our current understanding of the project.

Geotechnical Engineering & Geological Assessments

Geotechnical engineering and geological assessments were performed on the project site with reports submitted on June 9, 2006. These reports provided AET's opinions regarding the stability of the site and surrounding property, grading and drainage issues and potential building and slab construction issues.

Geotechnical Engineering Review

This review was submitted on August 17, 2006. This review addressed AET's review of the proposed site grading for the south detention basin and the discharging of storm water underground to the north and the placement of a new water line down the face of the southeast slope.

Engineered Fill

A soil sample was collected from an off-site source and tested for gradation and Atterburg Limits to determine its potential use as engineered fill on this site. Lab data indicates this material clayey gravel with sand having a Liquid Limit of 41 and a Plasticity Index of 20. Based on this information the material was verbally approved for possible use on the site as non-expansive engineered fill. A moisture-density relationship (modified proctor) is currently being run on this sample to determine its optimum moisture content and maximum dry density. Once the proctor is complete the results will be submitted in a separate letter.

Anticipated Future Services

At this time AET anticipates future services will include additional soil borings, lab testing a report to address project specific foundation and floor slab design, grading and compaction requirements, potential soil corrosivity for underground piping and pavement design. Construction observation and testing services would also be required during the construction phase.

AET trusts the above information provides a suitable summary of our services to date. AET looks forward to continuing to provide geotechnical engineering and construction testing services for this project. If you have any questions or need additional services please call our office at 388-0029.

Sincerely;



Robert Temme P.E.
South Dakota Operations Manager